



Current Perspectives on Food Stamp Program Participation

United States
Department of
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Service

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Evaluation

Food Stamp Program Participation Rates: January 1994

Current Perspectives on Food Stamp Program Participation

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Food Stamp Program Participation Rates: January 1994

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CONTENTS

Chapter		Page
	EXECUTIVE SUMMARY	xi
I	INTRODUCTION	1
	A. BACKGROUND	1
	B. ESTIMATING PARTICIPATION RATES	2
II	JANUARY 1994 FSP PARTICIPATION RATES	5
	A. AGGREGATE FSP PARTICIPATION RATES	5
	B. FSP PARTICIPATION RATES BY DEMOGRAPHIC SUBGROUP	7
	1. Children Participated at the Highest Rate, Elderly Participated at the Lowest Rate	7
	2. African Americans Participated at Higher Rates Than Other Racial/Ethnic Groups	9
	3. Persons Not in the Labor Force Participated at a Higher Rate Than Employed and Unemployed Persons	10
	C. FSP PARTICIPATION RATES BY HOUSEHOLD COMPOSITION AND SIZE	10
	1. Single-Parent Households Participated at a Higher Rate Than Multiple-Adult Households with Children	10
	2. Households with Two to Four Persons Were More Likely Than Other Households to Participate	12
	D. PARTICIPATION RATES BY AMOUNT AND SOURCE OF INCOME	12
	1. Those Most in Need Participated at the Highest Rates	12
	2. Households Receiving Cash Assistance Participated at a Higher Rate Than Households with Income from Other Sources	15
	E. PARTICIPATION RATES BY BENEFIT LEVEL	16
	1. Participation Rates Were Highest for Households with the Highest Potential Benefit	16

CONTENTS (continued)

Chapter		Page
	2. Benefit Levels Did Not Influence Participation Decisions for Most Subgroups	19
III	TRENDS IN FSP PARTICIPATION RATES	25
	A. TRENDS IN AGGREGATE PARTICIPATION RATES	27
	1. Comparison of Participation Rates from 1985 to 1994	27
	2. Similar Trends in Rates Found in a CPS-Based Study	30
	B. CHANGES IN PARTICIPATION RATES BY DEMOGRAPHIC CHARACTERISTICS AND HOUSEHOLD COMPOSITION	35
	1. Participation Rates Decreased Among Children	35
	2. The Participation Rate for One-Person Households Increased, While the Rate for Larger Households Declined	39
	C. CHANGES IN PARTICIPATION RATES BY AMOUNT AND SOURCE OF INCOME, AND BY POTENTIAL BENEFIT AMOUNT	39
	1. Trends in Participation Rates Were Similar for Households Above and Below the Poverty Level	39
	2. Participation Rates Increased for Households Receiving SSI or Unemployment Compensation	44
	3. Participation Rates Increased Among the Lowest-Benefit and the Highest-Benefit Households	44
IV	CHARACTERISTICS OF ELIGIBLE NONPARTICIPATING HOUSEHOLDS IN JANUARY 1994	51
	A. DEMOGRAPHIC CHARACTERISTICS OF ELIGIBLE NONPARTICIPATING HOUSEHOLDS	51
	B. ECONOMIC CHARACTERISTICS OF ELIGIBLE NONPARTICIPATING HOUSEHOLDS	53
	REFERENCES	57

APPENDIX A: METHODOLOGY AND DATA SOURCES USED TO ESTIMATE FSP PARTICIPATION RATES IN JANUARY 1994	59
APPENDIX B: PERCENT CHANGE IN PARTICIPANTS AND ELIGIBLES BETWEEN JANUARY 1989 AND JANUARY 1994	71
APPENDIX C: UNWEIGHTED SAMPLE SIZES FOR THE IQCS AND SIPP DATA USED TO ESTIMATE PARTICIPATION RATES	85
APPENDIX D: SAMPLING ERROR OF PARTICIPATION RATE ESTIMATES	89

TABLES

Table		Page
II.1	PERSON, HOUSEHOLD, AND BENEFIT PARTICIPATION RATES, JANUARY 1994	6
II.2	INDIVIDUAL PARTICIPATION RATES BY SELECTED DEMOGRAPHIC CHARACTERISTICS FOR PERSONS, JANUARY 1994	8
II.3	FSP PARTICIPATION RATES FOR HOUSEHOLDS BY SELECTED DEMOGRAPHIC CHARACTERISTICS, JANUARY 1994	11
II.4	FSP PARTICIPATION RATES BY HOUSEHOLD SIZE, JANUARY 1994	13
II.5	FSP PARTICIPATION RATES FOR HOUSEHOLDS BY GROSS INCOME RELATIVE TO POVERTY, JANUARY 1994	14
II.6	HOUSEHOLD PARTICIPATION RATES BY SELECTED SOURCES OF INCOME, JANUARY 1994	17
II.7	FSP PARTICIPATION RATES FOR HOUSEHOLDS BY MONTHLY BENEFIT, JANUARY 1994	18
II.8	FSP PARTICIPATION RATES FOR PERSONS BY GROSS INCOME RELATIVE TO POVERTY, JANUARY 1994	20
II.9	BENEFIT RATES BY DEMOGRAPHIC CHARACTERISTICS OF THE HOUSEHOLD, JANUARY 1994	22
II.10	BENEFIT RATES BY GROSS INCOME RELATIVE TO POVERTY, JANUARY 1994	23
III.1	FSP PARTICIPATION RATES OVER TIME, 1985-1994	26
III.2	FSP PARTICIPATION RATES BASED ON THE MARCH CPS AND FOOD STAMP PROGRAM OPERATIONS DATA, 1985-1994	31
III.3	TRENDS IN SIPP- AND CPS-BASED PARTICIPATION RATES, 1984-1994	32

III.4	PERSON PARTICIPATION RATES BY SELECTED BY SELECTED DEMOGRAPHIC CHARACTERISTICS, 1985-1994	38
III.5	HOUSEHOLD PARTICIPATION RATES BY SELECTED DEMOGRAPHIC CHARACTERISTICS, 1985-194	40
III.6	HOUSEHOLD PARTICIPATION RATES BY INCOME AND BENEFIT CHARACTERISTICS, 1985-1994	41
III.7	STATISTICAL SIGNIFICANCE OF CHANGES IN FSP PARTICIPATION RATES BETWEEN JANUARY 1992 AND JANUARY 1994	50
IV.1	DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS OF ELIGIBLE NONPARTICIPATING HOUSEHOLDS, JANUARY 1994	52
IV.2	DISTRIBUTION OF ELIGIBLE NONPARTICIPATING HOUSEHOLDS ABOVE AND BELOW POVERTY, JANUARY 1994	54
IV.3	DISTRIBUTION OF ELIGIBLE NONPARTICIPATING HOUSEHOLDS BELOW POVERTY THAT ARE ELIGIBLE FOR THE MAXIMUM FOOD STAMP BENEFIT, JANUARY 1994	55

FIGURES

Figures		Page
III.1a	TRENDS IN FSP PARTICIPATION RATES, 1985-1994	28
III.1b	TRENDS IN ELIGIBLES AND PARTICIPANTS, 1985-1994	29
III.2a	TRENDS IN PARTICIPATION RATES FOR CHILDREN, ELDERLY, AND NONELDERLY DISABLED PERSONS, 1985-1994	36
III.2b	TRENDS IN ELIGIBLES AND PARTICIPANTS FOR CHILDREN, ELDERLY, AND NONELDERLY DISABLED PERSONS, 1985-1994	37
III.3a	TRENDS IN PARTICIPATION RATES BY SELECTED ECONOMIC CHARACTERISTICS, 1985-1994	42
III.3b	TRENDS IN ELIGIBLES AND PARTICIPANTS BY SELECTED ECONOMIC CHARACTERISTICS OF THE HOUSEHOLD, 1985-1994	43
III.4a	TRENDS IN PARTICIPATION RATES BY INCOME SOURCE OF THE HOUSEHOLD, 1985-1994	46
III.4b	TRENDS IN ELIGIBLES AND PARTICIPANTS BY INCOME SOURCE OF THE HOUSEHOLD, 1985-1994	47
III.5a	TRENDS IN PARTICIPATION RATES BY FSP BENEFIT LEVEL AS A PERCENTAGE OF THE MAXIMUM BENEFIT, 1985-1994	48
III.5b	TRENDS IN ELIGIBLES AND PARTICIPANTS BY FSP BENEFIT LEVEL AS A PERCENTAGE OF MAXIMUM BENEFIT, 1985-1994	49

EXECUTIVE SUMMARY

This report presents the January 1994 Food Stamp Program (FSP) participation rates. It is part of a series of reports that provide estimates of FSP participation rates. The estimates are based on Survey of Income and Program Participation (SIPP) data for eligibles and FSP administrative data for participants.

The participation rate expresses the proportion of those eligible for food stamps who actually apply for and receive benefits. It is a measure of how well the program is reaching its intended population and provides information on which groups of the eligible population participate at higher or lower rates than other groups. Furthermore, a comparison of rates over time shows trends in participation rates.

As shown in the table below, 38 million persons were eligible for the FSP in January 1994, and 27 million persons (71 percent) participated. Of the 15.7 million eligible households in January 1994, 10.8 million (69 percent) participated. These participating households received \$1.8 billion in benefits--81 percent of total potential food stamp benefits.

JANUARY 1994 FSP PARTICIPATION RATES

	Participants (in Thousands)	Eligibles (in Thousands)	Participation Rate
Persons	26,872	37,866	71%
Households	10,840	15,749	69
Benefits	\$1,824,471	\$2,247,535	81

JANUARY 1994 PARTICIPATION RATES BY DEMOGRAPHIC SUBGROUP AND INCOME SOURCE

Some groups of eligibles participated at a higher or lower rate than others and received a greater or smaller proportion of food stamp benefits. Highlights of the January 1994 participation rates by subgroup include the following:

- ***Almost All Eligible Children Participated, but Only One in Three Eligible Elderly Persons Participated.*** The FSP served almost every eligible child under age 5 (93 percent) and most children under age 18 (80 percent), but it served only 35 percent of eligible elderly persons.

- ***African Americans Participated at Higher Rates Than Other Racial/Ethnic Groups.*** Eligible households headed by African Americans were more likely to participate (92 percent) than households headed by Hispanics (61 percent) or white non-Hispanics (59 percent).
- ***Nearly All Eligible Persons Not in the Labor Force Participated.*** The FSP served virtually all eligible persons who were not in the labor force (100 percent), more than half of all eligible unemployed persons who were in the labor force (56 percent), but only 39 percent of eligible employed persons.
- ***Single-Parent Households Participated at a Higher Rate Than Other Types of Households.*** Households containing a single parent with children were more likely to participate (97 percent) than households containing multiple adults and children (73 percent).
- ***The Lower the Income, the Higher the Participation Rate.*** The FSP participation rate for households with a monthly income below the poverty line was 87 percent, compared with 21 percent for households with an income above the poverty line.
- ***The Higher the Benefit, the Higher the Participation Rate.*** Only 23 percent of households eligible for the minimum (\$10) benefit participated, compared with 89 percent of those eligible for more than \$150.
- ***Households Receiving Aid to Families with Dependent Children (AFDC) Were More Likely to Participate Than Those with Earnings or Unemployment Compensation.*** When adjusted for known levels of underreporting in SIPP, the participation rate for households with AFDC was 84 percent. Only 46 percent of households with earnings and 52 percent of households with unemployment compensation participated.

TRENDS IN FSP PARTICIPATION RATES

Between January 1992 and January 1994, equal percentage increases in the number of eligible and participating FSP households caused the household participation rate to hold at 69 percent. Although the overall household participation rate did not change, the participation rate for one-person households increased while the rate for larger households fell. Consequently, the person participation rate declined slightly, from 74 percent in 1992 to 71 percent in 1994.

Participation rates in January 1994 remained at or near their highest point since the beginning of the series in August 1985. Between August 1985 and January 1988, the person participation rate declined slightly, from 64 percent to 59 percent, then remained constant between 1988 and 1989

before rising to 74 percent in January 1992. Between 1992 and 1994, the participation rate decreased to 71 percent.

The trends in participation rates observed in this SIPP-based report are generally consistent with trends in participation rates based on the Current Population Survey (CPS). SIPP-based rates are more accurate than CPS-based rates because the SIPP data contain more of the information needed to estimate food stamp eligibility, but CPS-based rates provide insight into the trends in rates over a longer period of time than the SIPP covers. CPS-based rates indicate that, between 1992 and 1994, the participation rate among eligible households increased by 3 percentage points and the rate among eligible persons increased by 2 percentage points.

CHANGES IN FSP PARTICIPATION RATES BETWEEN 1992 AND 1994 FOR SUBGROUPS

Participation rates for some subgroups of the population changed by more or less than those for other subgroups between January 1992 and January 1994. Highlights of the changes in participation rates for subgroups during this time period include the following:

- ***The Participation Rate Decreased for Children.*** Between 1992 and 1994, the participation rate decreased by 5 percentage points among children.
- ***The Participation Rate Increased for Households Receiving Supplemental Security Income (SSI) or Unemployment Compensation.*** Between 1992 and 1994, the participation rate increased for households receiving SSI (+8 percentage points) and households receiving unemployment compensation (+11 percentage points).
- ***The Participation Rate Increased for Households Eligible for the Lowest and the Highest Benefits.*** The participation rate increased among households eligible for less than 25 percent of the maximum benefit (+3 percentage points) and among households eligible for the maximum benefit (+8 percentage points). The rate increase among low-benefit households was caused in part by a higher rate of participation among minimum-benefit households.

CHARACTERISTICS OF ELIGIBLE NONPARTICIPANTS

Although 27 million people participated in the FSP in January 1994, 11 million eligible people (29 percent of all eligibles) did not participate. In January 1994, eligible nonparticipants were most likely to be elderly persons, households headed by a white non-Hispanic person, households with an income above the poverty level, and households eligible for the lowest food stamp benefits. The working poor also represented a large proportion of eligible nonparticipants. Over half (56 percent) of eligible, nonparticipating households had earned income compared with only 21 percent of participating households.

I. INTRODUCTION

A. BACKGROUND

The Food Stamp Program (FSP), administered by the U.S. Department of Agriculture's Food and Consumer Service (FCS), is the largest food assistance program in the country, serving 25.5 million persons and distributing \$22.5 billion in benefits in fiscal year 1996. No other public assistance program reaches more poor individuals over the course of a year. Unlike many other public assistance programs, the FSP has few categorical requirements for eligibility, such as the presence of children, elderly, or disabled individuals in a household. As a result, the program offers assistance to a large and diverse population of needy persons, many of whom are not eligible for other forms of assistance.

The size of the population eligible for food stamps is influenced by many factors, including changes in program rules, the economy, and demographics. At any given time, some percentage of all eligible households will participate in the FSP. The ratio of participants to eligibles, or the *participation rate*, is a useful way to measure the program's success in reaching its target population.

Participation rates can reveal other useful information as well. For example, not all subgroups of the eligible population participate at the same rate because demographic and economic factors can influence a household's decision to participate. Therefore, a comparison of participation rates across subgroups can help policymakers identify unmet needs and more effectively focus program outreach efforts. Participation rates vary not only by subgroup but also over time. Trends in rates over time offer insight into the impact of outreach efforts and into the effects of changes in program rules and the economy on FSP participation.

This report presents estimates of FSP participation rates for January 1994 and sets them in the context of past participation rates, thus revealing trends in rates over time. It is part of a series of reports on estimates of FSP participation rates based on Survey of Income and Program Participation

(SIPP) data for eligibles and FSP administrative data for participants.¹ This introductory chapter explains how the participation rate is derived, and Chapters II through IV address the following questions:

- What proportion of the eligible population did the FSP serve in January 1994? Did some groups of eligibles participate at higher rates than others?
- How do the January 1994 participation rates compare to the January 1992 and other previous rates in the series? How do trends in SIPP-based participation rates compare with trends in CPS-based participation rates?
- What are the characteristics of households that were eligible for, but did not participate in, the FSP in January 1994?

Appendix A describes the methodology and data used to estimate participation rates, as well as the creation of the SIPP analysis file. Appendix B shows the percent change in the number of participants and eligibles between January 1992 and January 1994. This information is referred to several times in Chapter III. Appendix C lists the unweighted sample sizes for the IQCS and SIPP data used in the analysis, and Appendix D describes the methods used to calculate standard errors for selected participation rate estimates.

B. ESTIMATING PARTICIPATION RATES

The participation rate is the ratio of the number of participants to the number of eligibles. Measuring the number of participants is a simple task, as food stamp offices collect and track this information. Measuring the number of eligibles is less straightforward, since the count must be estimated from household survey data and a simulation that determines program eligibility. The discussion that follows describes the data sources and methodology used to estimate the number of participants and eligibles, and defines three types of participation rates.

¹See the front inside cover for a list of other reports in the series.

Information on FSP participants comes from two administrative data sources: FSP operations data and the Integrated Quality Control System (IQCS). Program operations data, derived from a monthly census of FSP participation and benefit issuance, provide an accurate measure of aggregate participation. These data do not, however, reflect the characteristics of FSP participants, information that is needed to calculate participation rates for demographic and economic subgroups. This detailed information comes from a two-month sample (January and February 1994) of food stamp case records from IQCS data.

Information on FSP eligibles is not explicitly reported in any data source, as no record is kept of eligible people unless they apply for and receive food stamps. However, estimates of the size and characteristics of the eligible population can be derived from a representative sample of households in the U.S. and a microsimulation model that determines whether each household in this sample is eligible to receive food stamps. The sample for this report consists of households in the SIPP universe in January 1994.²

Much of the effort required to estimate the number of eligibles involves preparing a SIPP file that contains all the information needed to determine FSP eligibility. Once this file is developed, the microsimulation model applies the FSP eligibility criteria in effect in January 1994 to each household on the file to determine, on a case-by-case basis, whether the household is eligible for food stamps. For households that are eligible, the model then determines the value of the food stamp benefit for which it qualifies.

Three participation rates are examined in this report:

²Participation rates are estimated for January 1994 because Wave 4 of the 1993 SIPP Panel and Wave 7 of the 1992 Panel overlap in January 1994. The topical modules administered in Waves 4 and 7 focus on characteristics needed to determine FSP eligibility. When the reference period of two panels overlap, the panels can be combined, thereby doubling the sample size for a given month.

- ***Person Participation Rate.*** This is the ratio of the number of persons participating to the number of persons eligible for food stamps. The person rate is particularly useful in exploring participation of subgroups defined by person-level characteristics, such as age or sex. For example, the person rate is used to compare the participation rate among elderly persons to the rate among children.
- ***Household Participation Rate.*** This is the ratio of the number of households participating to the number of households eligible for food stamps. The household rate is particularly useful in exploring the participation of subgroups defined by household-level characteristics, such as income sources, potential benefit amount, or household size. The household rate is also used to compare rates by household composition, such as single-parent versus multiple-adult households.
- ***Benefit Participation Rate.*** This is the ratio of benefits paid to participants to benefits that would be paid if all eligibles participated. The benefit rate relative to the household and person rates can show whether high-benefit or low-benefit households are more likely to participate.

The next chapter presents the January 1994 participation rates and compares rates across selected demographic and economic subgroups.

II. JANUARY 1994 FSP PARTICIPATION RATES

In January 1994, food stamp benefits reached 71 percent of all eligible persons and 69 percent of all eligible households. The FSP provided 81 percent of total potential benefits. This chapter presents the January 1994 aggregate FSP participation rates and highlights the differences in participation rates across selected subgroups of the eligible population.¹ In summary, the subgroups differ as follows:

- Most eligible children participated in the FSP, while only about one-third of elderly persons participated. Children living with a single parent were more likely to participate than children living with multiple adults.
- Eligible households headed by African Americans were more likely to participate than households headed by other racial/ethnic groups.
- Eligible persons who were either employed or unemployed were less likely to participate than persons who were not in the labor force.
- The poorest households and those eligible for the highest benefits participated at the highest rates.
- Eligible households receiving Aid to Families with Dependent Children (AFDC) or other public assistance were much more likely to participate than households with earnings or unemployment compensation.

A. AGGREGATE FSP PARTICIPATION RATES

In January 1994, 37.9 million persons in the 50 states and the District of Columbia were eligible for the FSP, and 26.9 million persons (71 percent) participated (Table II.1). Of the 15.7 million

¹Participation rates in this report represent the ratio of participants to eligibles. Participant counts are based on FSP operations data and a two-month sample of IQCS data; eligible counts are based on January 1994 SIPP data. Both counts are subject to statistical sampling error, as are the resulting participation rate estimates. Appendix D describes the methods used to calculate standard errors and confidence intervals associated with selected participation rate estimates. The aggregate rates for persons, households, and benefits are subject to a sampling error of less than ± 2 percentage points (80 percent confidence interval).

TABLE II.1
PERSON, HOUSEHOLD, AND BENEFIT PARTICIPATION RATES,
JANUARY 1994

	Participants	Eligibles	Participation Rate
Persons (1,000s)	26,872	37,866	71.0%
Households (1,000s)	10,840	15,749	68.8%
Benefits (1,000s)	\$1,824,471	\$2,247,535	81.2%
Average Household Size	2.5	2.4	n.a.
Average Per-Capita Benefit	\$67.9	\$59.4	n.a.

SOURCES: Food Stamp Program Statistical Summary of Operations (Food Stamp Program Operations data) for January 1994, adjusted for issuance error.

January 1994 MATH[®] SIPP model, Wave 7 of the 1992 Panel and Wave 4 of the 1993 Panel of SIPP.

n.a. = not applicable.

eligible households in January 1994, 10.8 million (69 percent) participated, and they received \$1.8 billion in benefits--81 percent of total potential food stamp benefits. Based on an estimated national population of 253 million persons, 15 percent were eligible for food stamps, and nearly 11 percent received food stamp benefits in January 1994.

As in previous years, the benefit rate in January 1994 was substantially higher than the person rate, which in turn was slightly higher than the household rate. The higher benefit rate indicates that households eligible for large benefits were more likely to participate than those eligible for small benefits. Similarly, the higher person rate implies that large households were more likely than small households to participate.

B. FSP PARTICIPATION RATES BY DEMOGRAPHIC SUBGROUP

Although overall participation rates in January 1994 were 71 percent for eligible persons and 69 percent for eligible households, the rates varied across subgroups of the eligible population. This section examines how FSP participation rates varied by age, race, and employment status of the eligible population.

1. Children Participated at the Highest Rate, Elderly Participated at the Lowest Rate

In January 1994, participation rates were highest among preschool-age children and lowest among elderly persons. The FSP served almost every eligible preschool child (93 percent), about three-quarters of both eligible school-age children (74 percent) and nonelderly adults (73 percent), but only 35 percent of eligible elderly persons (Table II.2). Elderly persons may be less likely than others to participate because they generally qualify for only small benefits, as they tend to live alone and have relatively high incomes.

Other research supports the finding that elderly persons participate at rates far below average. For example, participation rates calculated on the basis of Current Population Survey data show that

TABLE II.2

INDIVIDUAL PARTICIPATION RATES BY SELECTED
DEMOGRAPHIC CHARACTERISTICS FOR PERSONS,
JANUARY 1994

	Number of Participating Persons (in Thousands)	Number of Eligible Persons (in Thousands)	Person Participation Rate (Percentage)
Elderly Age 60 or Older	1,908	5,414	35.2
Living alone	1,245	3,202	38.9
Living with others	662	2,213	29.9
Disabled Under Age 60	1,454	2,050	70.9
Living alone	611	657	93.0
Living with others	843	1,393	60.5
Children (Under Age 18)	13,652	17,013	80.2
Preschool (under age 5)	5,349	5,779	92.6
School-age (age 5 to 17)	8,302	11,234	73.9
Adults Ages 18 to 59	11,264	15,438	73.0
Living alone (not disabled)	1,689	1,439	117.4
Gender			
Male	10,854	15,665	69.3
Female	16,018	22,201	72.2
Employment Status			
Employed	2,079	5,308	39.2
Unemployed	1,238	2,208	56.1
Not in labor force	7,947	7,921	100.3
Total	26,872	37,866	71.0

SOURCES: January 1994 Food Stamp Program Operations data adjusted for issuance error. Special tabulations from IQCS data for January and February 1994.

January 1994 MATH SIPP model, Wave 7 of the 1992 Panel and Wave 4 of the 1993 Panel of SIPP.

NOTE: Participation rates exceeding 100 percent are due to reporting and measurement errors in SIPP (see Appendix A).

in August 1993, elderly persons participated at less than half the rate of all other persons (Trippe 1995). Using multivariate analyses, Martini (1992) found that the predicted participation rate for households that contain elderly persons was about two-thirds the rate of all households after controlling for other factors.²

2. African Americans Participated at Higher Rates Than Other Racial/Ethnic Groups

Eligible households headed by African Americans were more likely to participate in the FSP (94 percent) than households headed by Hispanics (63 percent) or white non-Hispanics (60 percent) (Table II.3). Martini (1992) found a similar gap between households headed by African Americans and whites in his univariate analysis of participation rates. However, when other household characteristics were held constant, the gap between predicted participation rates of households headed by African Americans and whites was much smaller (only 5 percentage points). Furthermore, for female-headed households with children, Martini found almost no difference (less than 1 percentage point) in the predicted participation rates of households headed by African Americans and whites. The results of this multivariate analysis suggest that most of the difference between participation rates of African Americans and whites revealed in the univariate analysis is due not to race per se, but to factors that are correlated with race.

²Martini (1992) used the August 1985 SIPP to perform a multivariate analysis of the relationship between household characteristics and FSP participation. He compared "predicted" participation rates based on the multivariate analysis with "observed" participation rates based on the ratio of participants to eligibles (univariate analysis). The household characteristics (explanatory variables) for the multivariate analysis were age, race/ethnicity, and education of the reference person, household size, presence of children, income relative to poverty, receipt of public assistance, and presence of assets and earnings.

3. Persons Not in the Labor Force Participated at a Higher Rate Than Employed and Unemployed Persons

In January 1994, participation rates were highest among persons outside the labor force and lowest among employed persons (Table II.2).³ The FSP served virtually all eligible persons outside the labor force (100 percent), more than half of eligible unemployed persons who were in the labor force (56 percent), but only 39 percent of eligible employed persons.⁴

C. FSP PARTICIPATION RATES BY HOUSEHOLD COMPOSITION AND SIZE

This section examines how FSP participation rates in January 1994 varied across subgroups defined by household composition and size.

1. Single-Parent Households Participated at a Higher Rate Than Multiple-Adult Households with Children

Most eligible households with children (86 percent) participated in the FSP in January 1994. However, single-parent households participated at a rate of 97 percent, while multiple-adult households with children participated at a rate of 73 percent (Table II.3). Single-parent households probably participated at a higher rate because they had less income, were less likely to have earnings, and were more likely to receive AFDC than were multiple-adult households. In January 1994, the average gross income for eligible single-parent households was \$324, compared with \$724 for multiple-adult households with children. Only 35 percent of eligible single-parent households had earnings, compared with 64 percent of multiple-adult households, and 62 percent of eligible single-parent households received AFDC, compared with 26 percent of multiple-adult households. All three

³A person is outside the labor force if he or she is unemployed and not actively looking for work.

⁴Participation rates that equal or exceed 100 percent should be interpreted with caution. These unrealistically high rates are caused by underreporting and other sampling problems on the SIPP-- problems that are particularly acute among low-income households. See Appendix A for a more detailed discussion of underreporting in SIPP.

TABLE II.3

FSP PARTICIPATION RATES FOR HOUSEHOLDS BY SELECTED
DEMOGRAPHIC CHARACTERISTICS,
JANUARY 1994

Household Contains	Number of Participating Households (in Thousands)	Number of Eligible Households (in Thousands)	Household Participation Rate (Percentage)
Elderly Age 60 or Older	1,722	4,805	35.8
Disabled Under Age 60	1,378	1,944	70.9
Children (Under Age 18)	6,527	7,631	85.5
Preschool (under age 5)	3,820	4,116	92.8
School-age (age 5 to 17)	4,544	5,824	78.0
Single Parent with Children ^a	4,513	4,663	96.8
Single female adult	4,215	4,402	95.8
Single male adult	298	261	114.1
Two or More Adults with Children ^b	2,014	2,776	72.5
White non-Hispanic Head	5,127	8,533	60.1
African American Head	3,753	4,016	93.5
Hispanic Head	1,631	2,612	62.5
Total^c	10,840	15,749	68.8

SOURCES: January 1994 Food Stamp Program Operations data adjusted for issuance error. Special tabulations from IQCS data for January and February 1994

January 1994 MATH SIPP model, Wave 7 of the 1992 Panel and Wave 4 of the 1993 Panel of SIPP.

NOTE: Participation rates exceeding 100 percent are due to reporting and measurement errors in SIPP (see Appendix A).

^aHouseholds containing a single parent with children are defined as households with only one nonelderly adult (age 18 to 59) and children.

^bIncludes households in which the gender of the household head is unknown and female-headed households that contain two or more adults.

^cCategories do not sum to total because households may exhibit more than one of the characteristics listed.

of these characteristics (low income, no earnings, and AFDC receipt) are associated with high participation rates, as discussed in Section D.

2. Households with Two to Four Persons Were More Likely Than Other Households to Participate

Three-person households were the most likely to participate (86 percent), while one-person households (57 percent) and households with six or more persons (61 percent) were the least likely to participate (Table II.4). Overall, households with two to four persons participated at a substantially higher rate (80 percent) than other households (66 percent). This pattern may occur because two-to-four-person households are more likely than very small or very large households to contain single parents, who participate at very high rates. About 73 percent of eligible two- to four-person households contained a single parent, compared with only 37 percent of eligible households with five or more persons.

D. PARTICIPATION RATES BY AMOUNT AND SOURCE OF INCOME

This section examines how FSP participation rates in January 1994 varied across subgroups defined by income relative to the poverty level and by receipt of selected income sources.

1. Those Most in Need Participated at the Highest Rates

Low-income eligible households were more likely to participate than higher-income households. In January 1994, households with a gross income below the poverty level participated at a rate of 87 percent, while households above the poverty level participated at a rate of 21 percent.⁵ Among households in poverty, those with the lowest incomes were most likely to participate (Table II.5).

⁵Households in poverty are defined as households with gross income below the Department of Health and Human Services' (DHHS) 1993 Poverty Guideline, which is identical to the FSP's Fiscal Year 1994 Net Income Screen. The DHHS Poverty Guideline varies according to household size and geographic location.

TABLE II.4

FSP PARTICIPATION RATES BY HOUSEHOLD SIZE,
JANUARY 1994

Household Size (Number of persons)	Number of Participating Households (in Thousands)	Number of Eligible Households (in Thousands)	Household Participation Rate (Percentage)
1	3,703	6,462	57.3
2	2,568	3,325	77.2
3	1,965	2,298	85.5
4	1,401	1,836	76.3
5	700	997	70.2
6+	503	831	60.5
Total	10,840	15,749	68.8

SOURCES: January 1994 Food Stamp Program Operations data adjusted for issuance error. Special tabulations from IQCS data for January and February 1994.

January 1994 MATH SIPP model, Wave 7 of the 1992 Panel and Wave 4 of the 1993 Panel of SIPP.

TABLE II.5

FSP PARTICIPATION RATES FOR HOUSEHOLDS BY
GROSS INCOME RELATIVE TO POVERTY,
JANUARY 1994

Income as a Percentage of Poverty	Number of Participating Households (in Thousands)	Number of Eligible Households (in Thousands)	Household Participation Rate (Percentage)
Total ≤ 100	9,905	11,356	87.2
0	1,105	773	142.9
1-50	3,300	3,310	99.7
51-100	5,500	7,273	75.6
Total > 100	935	4,393	21.3
101-130	873	3,370	25.9
131+	62	1,023	6.0
Total	10,840	15,749	68.8

SOURCES: January 1994 Food Stamp Program Operations data adjusted for issuance error. Special tabulations from IQCS data for January and February 1994.

January 1994 MATH SIPP model, Wave 7 of the 1992 Panel and Wave 4 of the 1993 Panel of SIPP.

NOTE: Participation rates exceeding 100 percent are due to reporting and measurement errors in SIPP (see Appendix A).

Households with incomes below half the poverty level participated at a rate estimated to exceed 100 percent, while households between 51 and 100 percent of the poverty level participated at a rate of 76 percent.⁶

Several past studies of FSP participation report that eligible households with zero income participate at a lower rate than do eligible households with low but positive income. For example, using 1988 SIPP data, Trippe and Doyle (1992a) found that 70 percent of eligible zero-income households participated in the FSP, compared with 79 percent of eligible households with incomes between 1 and 50 percent of the poverty level. However, SIPP data show that this gap has closed over time and that in 1992, the participation rate of zero-income households surpassed the participation rate of low-income households.⁷

2. Households Receiving Cash Assistance Participated at a Higher Rate Than Households with Income from Other Sources

Households receiving cash assistance, such as AFDC or Supplemental Security Income (SSI), participated at a higher rate than households with earnings or unemployment compensation. In January 1994, households with AFDC income participated at a rate estimated to exceed 100 percent;

⁶The 143 percent rate among households with zero gross income is probably caused by misreporting and other sampling problems on IQCS and SIPP. For example, the IQCS may fail to capture small amounts of income, thus overstating the number of participating units that have zero income. Alternatively, SIPP may undersample zero-income households, and thus understate the number of zero-income eligibles. Both errors would upwardly bias the participation rate of zero-income households.

⁷For more on participation rate trends among zero-income households, see Wemmerus and Porter (forthcoming).

the rate for households with SSI was 81 percent.⁸ In comparison, only 46 percent of households with earnings and 52 percent of households with unemployment compensation participated (Table II.6).

Households receiving AFDC participate in the FSP at a high rate, probably because they tend to be eligible for large benefits. In addition, households that already receive some form of public assistance are more likely to apply for food stamps because (1) states are required to offer joint application procedures for AFDC and food stamps, (2) households in which all members receive AFDC are categorically eligible for food stamp benefits, and (3) a household's decision to apply for food stamps may be part of a larger decision to apply for any available public assistance benefits. Martini (1992) found that FSP-eligible households receiving public assistance are much more likely to apply for food stamps than households not receiving public assistance regardless of their income, household size, or other characteristics.

E. PARTICIPATION RATES BY BENEFIT LEVEL

This section examines how FSP participation rates in January 1994 varied according to the benefit level to which an eligible household is entitled.

1. Participation Rates Were Highest for Households with the Highest Potential Benefit

Households were more likely to participate if they were eligible for a large food stamp benefit. Only 23 percent of households eligible for the minimum (\$10) benefit participated, compared with 89 percent of those eligible for \$151 or more (Table II.7). Participation rates also rose in conjunction

⁸The unrealistically high rate for AFDC households is caused by underreporting of AFDC receipt on the SIPP, as discussed in Appendix A. The number of AFDC households in SIPP is only 72 percent of the number based on AFDC administrative data. If the SIPP figure is adjusted for underreporting, the participation rate for eligible households with AFDC is 84 percent in January 1994. This more realistic rate for AFDC recipients is still much higher than for other groups of eligibles. Furthermore, studies using multivariate analysis have found a strong positive relationship between participation in the FSP and participation in public assistance programs (see Allin and Beebout 1989, and Martini 1992).

TABLE II.6

HOUSEHOLD PARTICIPATION RATES BY SELECTED SOURCES OF INCOME,
JANUARY 1994

Household Receives	Number of Participating Households (in Thousands)	Number of Eligible Households (in Thousands)	Household Participation Rate (Percentage)
Earned Income	2,301	5,026	45.8
SSI	2,251	2,767	81.4
Elderly in the unit	926	1,314	70.5
No elderly in the unit	1,325	1,453	91.2
Public Assistance ^a	4,979	4,277	116.4
AFDC	4,234	3,642	116.3
Other welfare	770	702	109.7
Unemployment Compensation	256	496	51.7
Total	10,840	15,749	68.8

SOURCES: January 1994 Food Stamp Program Operations data adjusted for issuance error. Special tabulations from IQCS data for January and February 1994.

January 1994 MATH SIPP model, Wave 7 of the 1992 Panel and Wave 4 of the 1993 Panel of SIPP.

NOTE: Participation rates exceeding 100 percent are due to reporting and measurement errors in SIPP (see Appendix A).

^aPublic assistance refers to AFDC, General Assistance, and local means-tested programs, such as Emergency Assistance.

TABLE II.7

FSP PARTICIPATION RATES FOR HOUSEHOLDS BY MONTHLY BENEFIT,
JANUARY 1994

Monthly Benefit Level ^a	Number of Participating Households (in Thousands)	Number of Eligible Households (in Thousands)	Household Participation Rate (Percentage)
Benefit Amount			
\$10 or less	499	2,184	22.9
\$11 - 75	1,751	3,222	54.3
\$76 - 150	3,234	4,302	75.2
\$151 or more	5,356	6,042	88.6
Benefit as a Percentage of Maximum			
1-25%	1,391	3,818	36.4
26-50	1,676	2,829	59.2
51-75	2,459	2,974	82.7
76-99	2,665	2,622	101.6
100	2,649	3,505	75.6
No gross income	1,105	773	142.9
No net income (gross > \$0)	1,544	2,732	56.5
Total	10,840	15,749	68.8

SOURCES: January 1994 Food Stamp Program Operations data adjusted for issuance error. Special tabulations from IQCS data for January and February 1994.

January 1994 MATH SIPP model, Wave 7 of the 1992 Panel and Wave 4 of the 1993 Panel of SIPP.

NOTE: Participation rates exceeding 100 percent are due to reporting and measurement errors in SIPP (see Appendix A).

^aThe maximum FSP benefit varies by household size and region. In January 1994, the maximum allotment for a family of 3 in the contiguous U.S. was \$295.

with benefits as a percentage of the maximum benefit amount. The only exception to this pattern is a decline in the rate for households entitled to the maximum benefit (the maximum benefit for a three-person household in the contiguous U.S. in January 1994 was \$295).

A household is entitled to the maximum FSP benefit if it has no net income (gross income minus allowable deductions). Of the 3.5 million households eligible for the maximum benefit in January 1994, 773 thousand (22 percent) had no gross income. The rest (78 percent) had gross income greater than zero, but allowable deductions reduced their net income to zero. As shown in Table II.7, households with no gross income participated at a rate estimated to exceed 100 percent. Thus, the unexpectedly low participation rate among households entitled to the maximum FSP benefit is caused by a low rate (57 percent) among households that have gross income but still receive the maximum benefit. The lower rate among these households is consistent with the finding that participation rates decline as gross income increases, though the difference between the two rates is surprisingly large.⁹

2. Benefit Levels Did Not Influence Participation Decisions for Most Subgroups

In January 1994, the benefit participation rate was 12 points higher than the household participation rate, suggesting that households were more likely to participate if they were eligible for a large benefit. This tendency (see Table II.8) is further supported by the high participation rates among high-benefit subgroups (such as low-income households and households with children) and low participation rates among low-benefit subgroups (such as higher-income and one-person households). But *within* these subgroups, the potential benefit amount seems to have had a much

⁹The substantial disparity in these two participation rates (households with no gross income and other households eligible for the maximum benefit) may also be attributable to misreporting and other sampling problems on IQCS and SIPP. For example, households that have very small amounts of gross income may be coded as having zero gross income on IQCS. This would upwardly bias the participation rate among households with no gross income and downwardly bias the participation rate among other households eligible for the maximum benefit. Similarly, undersampling of zero-income households on SIPP could exaggerate the participation rate among that group.

TABLE II.8

FSP PARTICIPATION RATES FOR PERSONS BY
GROSS INCOME RELATIVE TO POVERTY,
JANUARY 1994

Income as a Percentage of Poverty	Number of Participating Individuals (in Thousands)	Number of Eligible Individuals (in Thousands)	Individual Participation Rate (Percentage)
Total ≤ 100	24,575	28,598	85.9
0	1,715	1,522	112.6
1-50	9,476	9,888	95.8
51-100	13,383	17,188	77.9
Total > 100	2,298	9,267	24.8
101-130	2,192	7,738	28.3
131+	106	1,529	6.9
Total	26,872	37,866	71.0

SOURCES: January 1994 Food Stamp Program Operations data adjusted for issuance error. Special tabulations from IQCS data for January and February 1994.

January 1994 MATH SIPP model, Wave 7 of the 1992 Panel and Wave 4 of the 1993 Panel of SIPP.

NOTE: Participation rates exceeding 100 percent are due to reporting and measurement errors in SIPP (see Appendix A).

smaller effect on the likelihood of participation, as indicated by the similar benefit and household rates for these groups. For instance, the benefit participation rates (Table II.9) were within four percentage points of the household participation rates (Table II.3) for households with elderly, disabled, children, single parents, multiple adults with children, and households headed by a Hispanic person. Similarly, the benefit participation rates for households with incomes below and above the poverty level (Table II.10) were within four percentage points of the corresponding household participation rates (Table II.5).

Martini (1992) suggested that much of the variation in participation rates by benefit level, as reflected in observed rates, is due to the effect of household size and characteristics of the individual groups rather than to the benefit amount. Overall, Martini found a positive but small correlation between benefit level and FSP participation rates.

TABLE II.9
BENEFIT RATES BY DEMOGRAPHIC
CHARACTERISTICS OF THE HOUSEHOLD,
JANUARY 1994

Household Contains	Benefits Paid to Participating Households (in Thousands)	Potential Benefits for Eligible Households (in Thousands)	Benefit Rate (Percentage)
Elderly Age 60 or Older	\$117,285	\$292,770	40.1
Disabled Under Age 60	152,754	214,520	71.2
Children (Under Age 18)	1,467,571	1,703,821	86.1
Preschool (under age 5)	903,332	1,007,793	89.6
School-age (age 5 to 17)	1,076,092	1,351,339	79.6
Single Parent with Children	972,393	1,045,191	93.0
Single Female Adult	915,075	989,584	92.5
Single Male Adult	57,318	55,607	103.1
Two or More Adults with Children ^a	495,178	658,630	75.2
White non-Hispanic Head	803,159	1,015,128	79.1
African American Head	645,475	639,279	101.0
Hispanic Head	305,212	488,517	62.5
Total	1,824,471	2,247,535	81.2

SOURCES: January 1994 Food Stamp Program Operations data adjusted for issuance error. Special tabulations from IQCS data for January and February 1994.

January 1994 MATH SIPP model, Wave 7 of the 1992 Panel and Wave 4 of the 1993 Panel of SIPP.

NOTE: Participation rates exceeding 100 percent are due to reporting and measurement errors in SIPP (see Appendix A).

^aIncludes households in which the gender of the household head is unknown and female-headed households that contain two or more adults.

TABLE II.10

BENEFIT RATES BY GROSS INCOME
RELATIVE TO POVERTY,
JANUARY 1994

Income as a Percentage of Poverty	Benefits Paid to Participating Households (in Thousands)	Potential Benefits for Eligible Households (in Thousands)	Benefit Rate (Percentage)
Total ≤ 100	\$1,765,281	\$1,997,977	88.4
0	181,735	152,692	119.0
1-50	830,006	871,671	95.2
51-100	753,540	973,614	77.4
Total > 100	59,190	239,557	24.7
101-130	56,937	212,243	26.8
131+	2,253	37,314	8.2
Total	1,824,471	2,247,535	81.2

SOURCES: January 1994 Food Stamp Program Operations data adjusted for issuance error. Special tabulations from IQCS data for January and February 1994.

January 1994 MATH SIPP model, Wave 7 of the 1992 Panel and Wave 4 of the 1993 Panel of SIPP.

NOTE: Participation rates exceeding 100 percent are due to reporting and measurement errors in SIPP (see Appendix A).

III. TRENDS IN FSP PARTICIPATION RATES

The FSP participation rate was virtually unchanged between January 1992 and January 1994. In both years, 69 percent of eligible households participated in the FSP, and those households received just over 81 percent of potential benefits (Table III.1). Although the overall household participation rate did not change, the participation rate for one-person households increased while the rate for larger households fell. Consequently, the person participation rate declined slightly, from 74 percent in 1992 to 71 percent in 1994.

The relative stability of FSP participation rates between 1992 and 1994 masks a substantial increase in the size of the eligible and participation populations. Between 1992 and 1994, the number of eligible and participating households both increased by 13 percent, as did total potential benefits and benefits received.

This chapter compares the January 1994 participation rates to those in January 1992 and before, and examines trends in participation rates among selected subgroups of the eligible population. Highlights of the change in participation rates for subgroups between January 1992 and 1994 include the following:

- Participation rates decreased for children.
- Participation rates increased for one-person households.
- Participation rates increased for households with SSI or unemployment compensation.
- Participation rates increased for households eligible for the highest and lowest benefits.

TABLE III.1

FSP PARTICIPATION RATES OVER TIME
1985-1994

	August 1985	January 1988	January 1989	January 1992	January 1994	Percent Change (1992 to 1994)
Thousands						
Eligibles						
Persons	28,884	30,973	31,041	32,931	37,866	15.0 %
Households	11,604	12,292	12,689	13,983	15,749	12.6 %
Benefits	\$1,072,262	1,334,779	1,405,636	1,981,717	2,247,535	13.4 %
Participants						
Persons	18,560	18,286	18,344	24,291	26,872	10.6 %
Households	6,894	6,882	7,037	9,631	10,840	12.5 %
Benefits	\$807,265	890,158	927,391	1,615,320	1,824,471	12.9 %
Percent						Difference (1992 to 1994)
Participation Rates						
Persons	64.3	59.0	59.1	73.8	71.0	-2.8 points
Households	59.4	56.0	55.5	68.9	68.8	-0.0 points
Benefits	75.3	66.7	66.0	81.5	81.2	-0.3 points

SOURCE: Participant numbers are from the FSP Statistical Summary of Operations, adjusted for issuance errors.

Estimates for eligibles are from the MATHSIPP model.

A. TRENDS IN AGGREGATE PARTICIPATION RATES

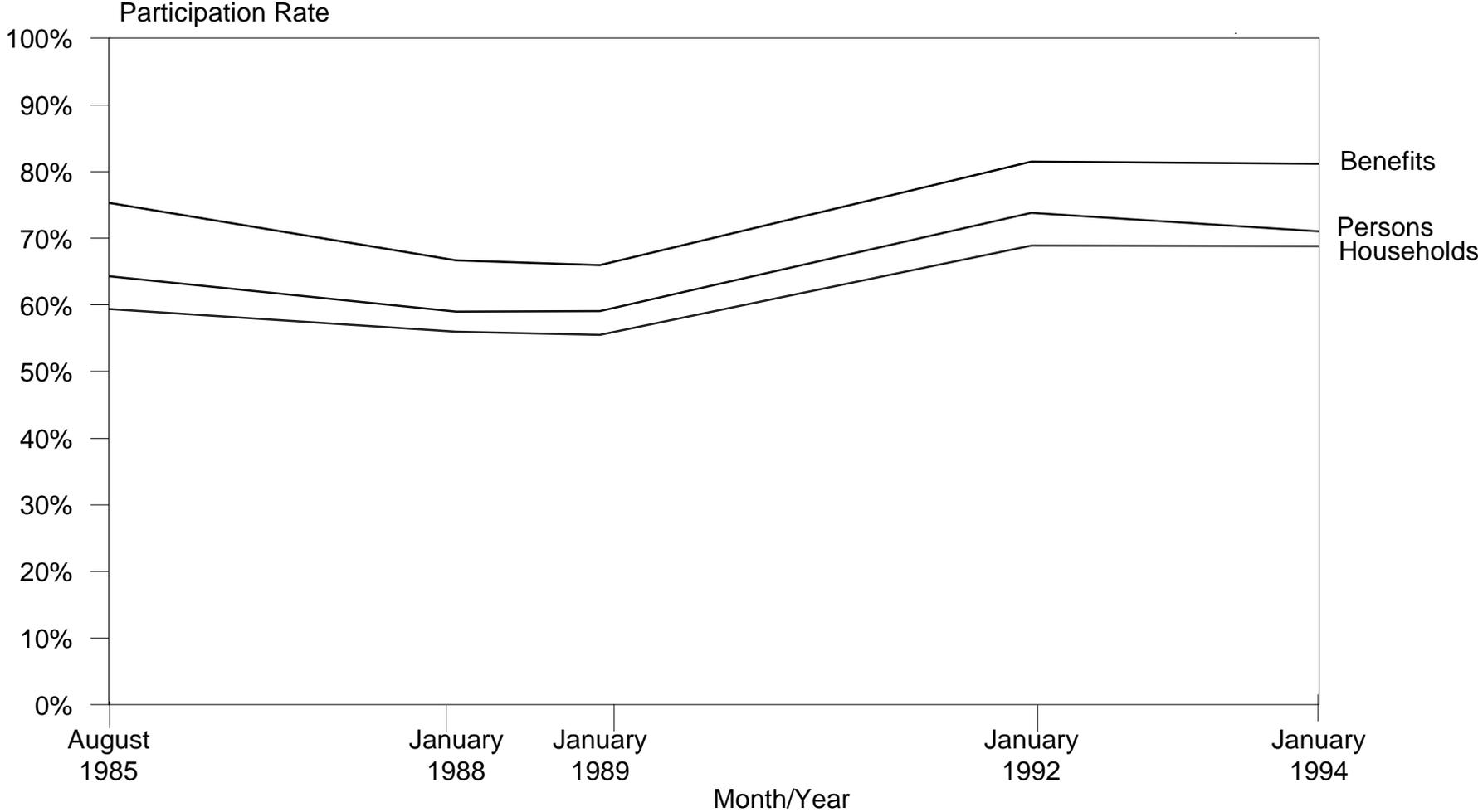
Participation rates held steady between 1992 and 1994 because of roughly equivalent increases in the number of eligibles and participants (Table III.1). This trend suggests that the 13 percent increase in the *number* of food stamp participants between 1992 and 1994 was driven by participation among new eligibles. In contrast, the surge in participants between January 1989 and January 1992 was driven largely by a higher participation rate among those already eligible (see Trippe 1994).

1. Comparison of Participation Rates from 1985 to 1994

FSP participation rates in January 1994 remained at or near their highest point since the beginning of the series in 1985 (Table III.1, Figure III.1a). Between 1985 and 1988, the household participation rate declined from 59 percent to 56 percent, then remained constant between 1988 and 1989 before rising to 69 percent in 1992. Between 1992 and 1994, the household rate did not change, though the person rate declined from 74 percent to 71 percent due to the increased participation rate of one-person households.

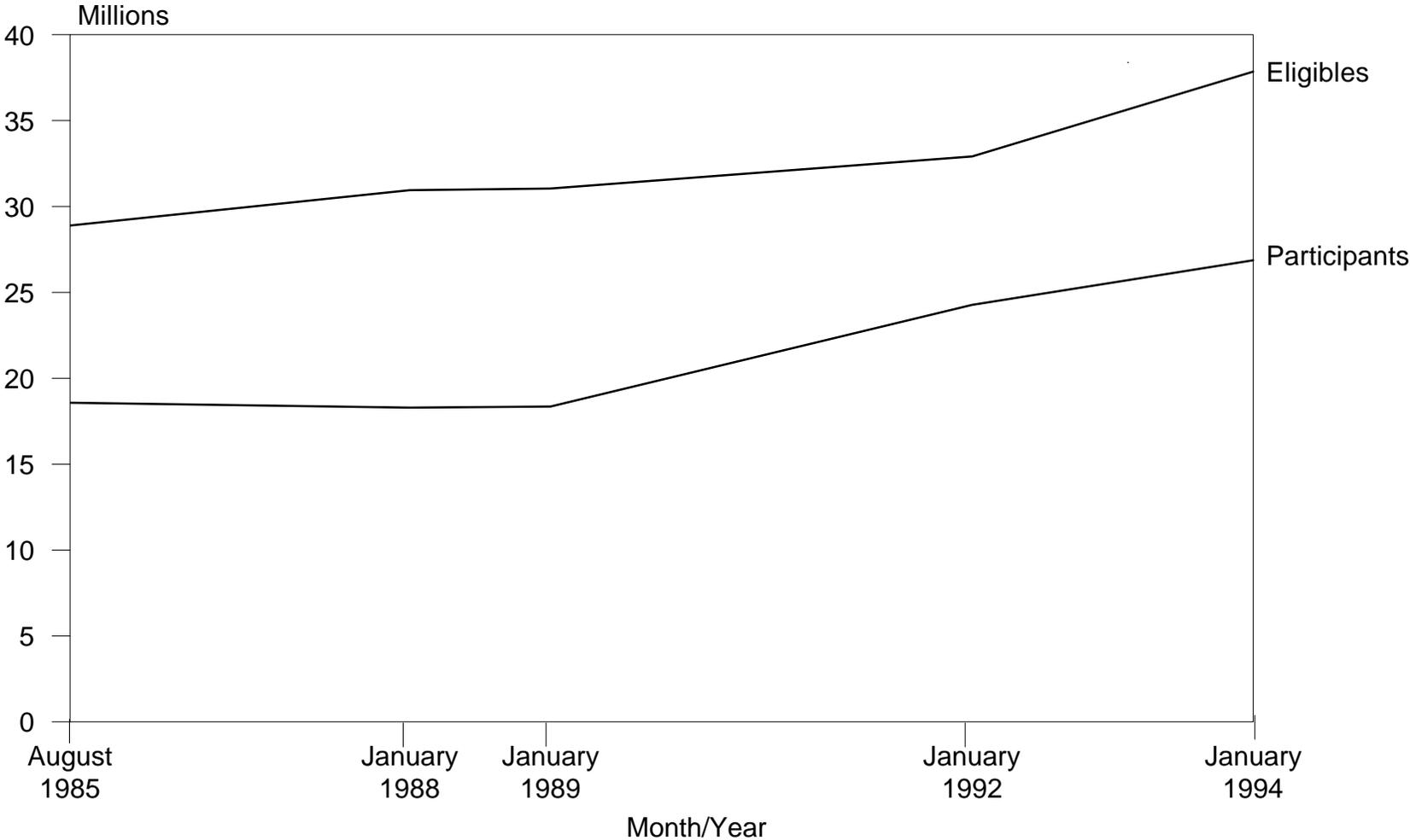
Legislative changes authorized by the 1985 Food Security Act were largely responsible for the decline in rates between 1985 and 1988. Although the act expanded the number of households eligible to receive food stamps, most of the newly eligible households did not participate in the FSP in 1988. Rates changed little between 1988 and 1989 but surged between 1989 and 1992. This dramatic upswing was caused by a combination of factors, including a worsening economy, expansions in Medicaid, increased access to FSP offices, and program outreach efforts. Finally, between 1992 and 1994, equal increases in the number of eligibles and participants caused participation rates to remain relatively stable (Figure III.1b).

FIGURE III.1a
TRENDS IN FSP PARTICIPATION RATES,
1985-1994



Source: Food Stamp Program Operations data, SIPP data for the years shown.

FIGURE III.1b
TRENDS IN ELIGIBLES AND PARTICIPANTS,
1985-1994



Source: Food Stamp Program Operations data, SIPP data for the years shown.

2. Similar Trends in Rates Found in a CPS-Based Study

The trends in participation rates observed in this SIPP-based report are consistent with the trends in participation rates based on the Current Population Survey (CPS) (Table III.2). The CPS-based estimates show that the household participation rate declined by 5 percentage points between 1984 and 1986, then held steady for two years before rising 14 points between 1988 and 1992. Between 1992 and 1994, the CPS-based rate increased by about 3 percentage points.

Although the two studies use different data sources and cover a slightly different period, they reveal a change in rates over time that is similar. The SIPP-based rates shown in Table III.1 are considered more accurate than the CPS-based rates because the SIPP data contain more of the information needed to estimate food stamp eligibility, and the study methodology more closely replicates the actual eligibility determination process. Participation rates are estimated from the CPS to provide insight into the trends in rates over a longer period of time than the SIPP covers. While trends in CPS-based rates generally mirror the trends observed in SIPP-based rates, there are two notable differences between the two sets of estimates. First, SIPP-based rates are consistently higher than the corresponding CPS-based rates, and second, the two sets of rates have converged slightly over the past ten years.

Since both sets of rates use participant counts derived from the same source (Food Stamp Program Operations data), differences between SIPP- and CPS-based participation rates are driven almost exclusively by differences in the estimated number of eligibles.¹ For example, the number of CPS participants in August 1988 was nearly identical to the number of SIPP participants in January 1989, but the CPS showed nearly 2 million more eligibles than SIPP (Table III.3). Consequently, the CPS

¹CPS participant counts are slightly higher than SIPP participant count, as SIPP counts exclude households that received benefits in error. The FSP caseload in January 1994 was reduced by 2.83 percent.

TABLE III.2
 FSP PARTICIPATION RATES
 BASED ON THE MARCH CPS AND FOOD STAMP PROGRAM OPERATIONS DATA,
 1984-1994

	Aug. 1984	Aug. 1986	Aug. 1988	Aug. 1990	Aug. 1992(o) ^a	Aug. 1992(r) ^a	Aug. 1994	Difference (1992 to 1994)
Individuals	53.0%	48.8%	49.3%	55.4%	60.5%	59.3%	61.4%	+2.1 points
Households	52.4	47.3	47.9	55.7	62.4	61.6	64.6	+3.0 points
Benefits	62.4	57.4	56.8	64.1	71.9	70.2	75.8	+5.6 points

SOURCES: Participant numbers are from the Food Stamp Program Operations data.

Estimates for eligibles are from simulations using data from the March CPS.

^aThere are two estimates for August 1992 due to the revised weighting process introduced by the Bureau of the Census in the March 1993 CPS. The original estimate (o) uses 1980 census population controls, and the revised estimate (r) uses 1990 census population controls and includes an adjustment for the census undercount.

TABLE III.3

TRENDS IN SIPP- AND CPS-BASED PARTICIPATION RATES, 1984 - 1994
(all numbers in thousands, except for percentages)

	Aug 84	Aug 85	Aug 86	Jan 88	Aug 88	Jan 89	Aug 90	Aug 91	Jan 92	Aug 92(o)	Aug92(r)	Aug 93	Jan 94	Aug 94
Households														
Participating - SIPP		6,894		6,882		7,037			9,631				10,840	
Participating - CPS	7,324		7,102		7,016		7,973	9,204		10,238		10,900		10,953
Eligible - SIPP		11,604		12,292		12,689			13,983				15,749	
Eligible - CPS	13,987		15,032		14,640		14,309	15,354		16,412	16,627	17,031		17,036
Participation Rate - SIPP		59.4%		56.0%		55.5%			68.9%				68.8%	
Participation Rate - CPS	52.4%		47.2%		47.9%		55.7%	59.9%		62.4%		64.0%		64.3%
Households That Pass Eligibility Tests														
Gross Income - SIPP		38,402		39,424		39,819			41,594				43,825	
Gross Income - CPS	24,881		25,246		25,296		25,554	26,818		27,972	28,097	28,766		29,015
Gross and Net Income - SIPP		17,513		17,475		17,519			18,991				21,967	
Gross and Net Income - CPS	17,216		17,909		17,367		17,058	18,152		19,178	19,381	19,903		19,883
Gross, Net, and Asset - SIPP		11,802		12,390		12,656			14,113				15,913	
Gross, Net, and Asset - CPS	14,048		15,179		14,752		14,418	15,440		16,502	16,719	17,201		17,243
Net Income Eligibles As A Percentage of Gross Income Eligibles														
SIPP		45.6%		44.3%		44.0%			45.7%				50.1%	
CPS	69.2%		70.9%		68.7%		66.8%	67.7%		68.6%	69.0%	69.2%		68.5%
Asset Eligibles As A Percentage of Income Eligibles														
SIPP		67.4%		70.9%		72.2%			74.3%				72.4%	
CPS	81.6%		84.8%		84.9%		84.5%	85.1%		86.0%	86.3%	86.4%		86.7%

SOURCE: Participant numbers are from the Food Stamp Program Operations data (SIPP participants adjusted for issuance errors). Estimates for SIPP eligibles are from the MATH SIPP model. Estimates for CPS eligibles are from simulations using data from the March CPS

NOTE: There are two estimates for August 1992 due to the revised weighting process introduced by the Bureau of the Census in the March 1993 CPS. The original estimate (o) uses 1980 census population controls and the revised estimate (r) uses 1990 census population controls.

household participation rate (47.9 percent) was about 8 points lower than the SIPP rate (55.5 percent). The CPS consistently overestimates the number of eligibles, and underestimates participation rates, because too many CPS households are simulated to pass the asset test.² This occurs because the CPS does not contain information on household asset balances, and the method used to estimate asset balances results in too few CPS households having assets.³ Unpublished statistics from Doyle (1990) indicate that if reported asset balances on SIPP were replaced with estimates based on the CPS method, the number of SIPP eligibles would increase by roughly 15 percent.

Although CPS-based counts of eligible households consistently exceed SIPP-based counts, the difference between the two has decreased over time. Comparing August 1984 CPS figures with August 1985 SIPP figures, there were 2.4 million more eligible households on CPS. This difference decreased to 2.0 million in 1989, 1.4 million in 1992, and 1.3 million in 1994.⁴ The converging number of eligibles can be attributed to two factors. First, by virtue of its superior asset data, SIPP is better able to capture changes in the number of asset-eligible households. For example, between 1984 and 1992, both the passage of the Food Security Act--which raised the FSP asset limit--and the

²The CPS and SIPP files are remarkably similar in terms of the number of income-eligible households--households that pass the gross and net income tests.

³CPS asset balances are estimated by dividing financial asset income by a rate of return (6.5 percent). Using this method, only 30 percent of August 1988 CPS households have positive asset balances compared with 60 percent of January 1989 SIPP households.

⁴These differences are based on the number of SIPP eligibles in January of a given year and the number of CPS eligibles in August of the preceding year. The August 1992 CPS figures cited in this section are the original estimates, based on the 1980 census population controls. Revised estimates, based on 1990 census population controls, are also presented in Tables III.2 and III.3. We cite original CPS figures so that changes in CPS rates between 1992 and 1994 are comparable with changes in SIPP rates over that period. SIPP weights were adjusted between 1992 and 1994 to reflect the change from 1980 to 1990 census population controls, but the data needed to measure the impact of the adjusted SIPP weights are not available, as they were with CPS. Assuming the SIPP adjustment had the same impact on eligibles as did the CPS adjustment (an increase of 1.3 percent in eligible households), the adjusted 1992 SIPP household rate would be 68.0 percent. Based on this estimate, the change in the SIPP-based household rate between 1992 and 1994 is +0.8 percentage points, compared with +3.0 points on CPS.

economic recession of the early 1990s increased the number of households that pass the FSP's asset test.⁵ SIPP captured these expansive effects, showing a 6.9 point increase in the percentage of income-eligible households that pass the asset test, from 67.4 percent in August 1985 to 74.3 percent in January 1992 (Table III.3).⁶ The corresponding CPS counts show only a 3.5 point increase, from 81.6 percent in August 1984 to 85.1 percent in August 1991. Because the SIPP captured more of the expansive effect of asset changes over that period, the number of SIPP eligibles moved closer to the number of CPS eligibles.

A second factor that contributed to the convergence of SIPP and CPS counts of eligibles was a jump in the number of income eligibles on SIPP between 1992 and 1994. Between 1984 and 1992, CPS and SIPP were remarkably similar in terms of the number of income-eligible households (Table III.3). But between 1992 and 1994, the number of income-eligible households on SIPP increased by 3.0 million while the number on CPS increased by only 0.7 million. SIPP's higher rate of growth among income eligibles is the primary reason that the SIPP-based household rate did not change between 1992 and 1994 while the CPS-based rates increased modestly.⁷

Finally, sampling error may explain a portion of the convergence of SIPP and CPS counts of eligibles. Future participation rate reports will reveal whether the observed convergence is permanent.

⁵For a description of the FSP's asset eligibility test, see Appendix A.

⁶Income-eligible households are those that pass both the gross and net income tests.

⁷The increase in SIPP income eligibles was caused by a decrease in household income relative to the gross and net income screens. Between 1992 and 1994, the average gross income of households that pass the gross income test decreased by 3.8 percent, and their average net income declined by 4.8 percent. Over that same period, the net and gross income screens for a family of four in the contiguous United States increased by 7.1 percent.

B. CHANGES IN PARTICIPATION RATES BY DEMOGRAPHIC CHARACTERISTICS AND HOUSEHOLD COMPOSITION

Although aggregate participation rates were basically unchanged between January 1992 and January 1994, rates increased among some subgroups of the population and decreased among others. This section examines trends in participation rates among selected demographic subgroups.

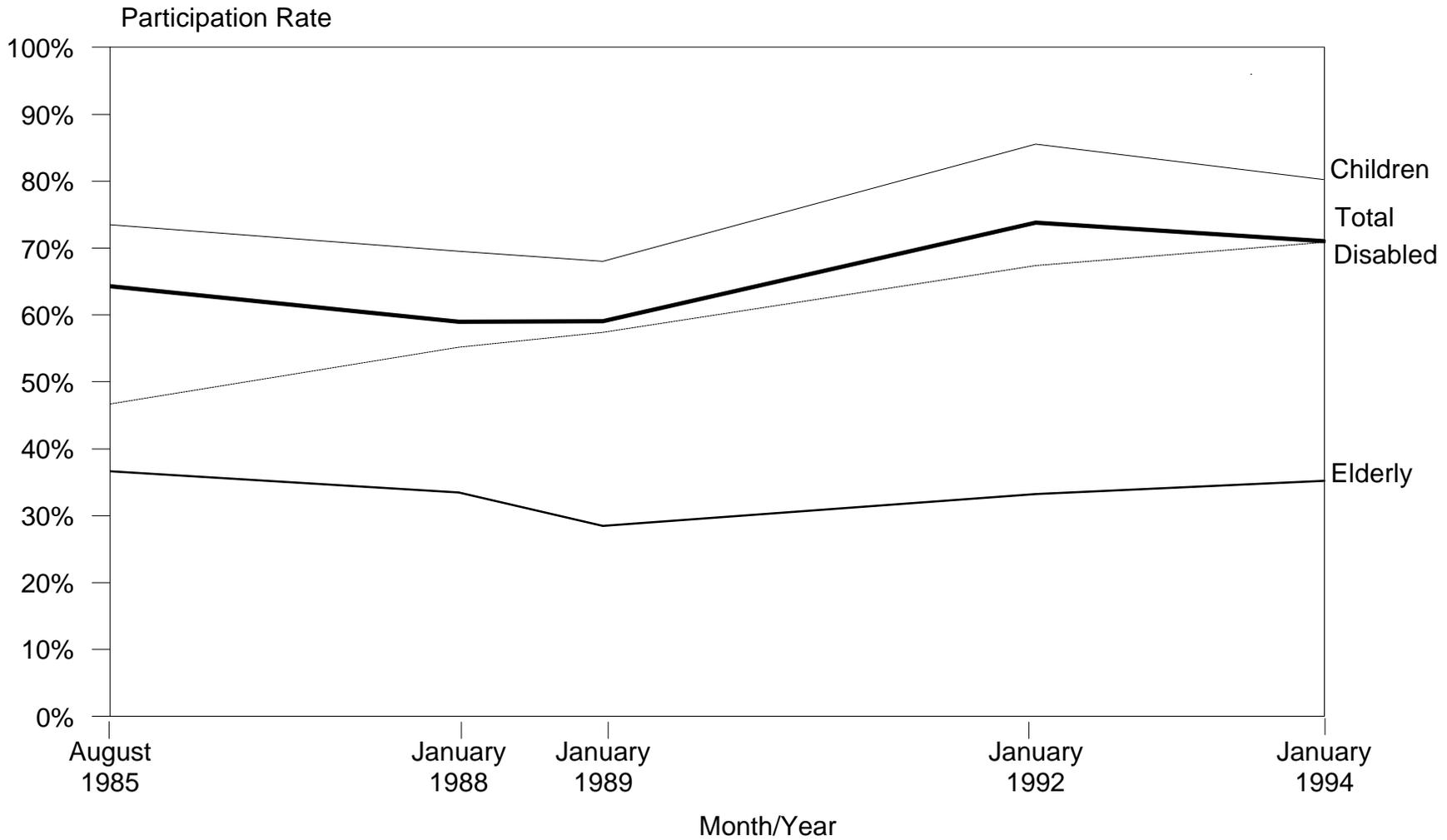
1. Participation Rates Decreased Among Children

Between 1992 and 1994, the participation rate decreased by 5 percentage points among children (Table III.4, Figures III.2a and III.2b). Rates increased among elderly persons (+2 points) and nonelderly disabled persons (+4 points) but these increases were within the bounds of sampling error (Table III.7). Trends among most groups, however, mirrored the aggregate trends, with equal increases in participants and eligibles producing little or no change in participation rates. Even the modest increase in the rate for nonelderly disabled persons obscures substantial growth in the number of disabled eligibles (45 percent) and participants (53 percent) (Appendix C).

The primary method of identifying disabled persons on the SIPP and IQCS databases is through receipt of Supplemental Security Income (SSI). The surge in the number of disabled eligibles and participants was driven by an increase in the number of nonelderly persons receiving SSI. Liberalized SSI eligibility requirements caused participation in the program to increase by 28 percent between September 1991 and September 1993.⁸ This increase in SSI participation occurred primarily among children, which may explain the substantial growth in the FSP participation rate of nonelderly disabled persons *living with others*.

⁸U.S. House of Representatives, Committee on Ways and Means. *Overview of Entitlement Programs: 1994 Green Book*. Washington, DC: U.S. Government Printing Office, 1994.

FIGURE III.2a
 TRENDS IN PARTICIPATION RATES FOR CHILDREN, ELDERLY, AND NONELDERLY DISABLED
 PERSONS, 1985-1994



Source: Food Stamp Program Operations data, SIPP data for the years shown.

FIGURE III.2b

TRENDS IN ELIGIBLES AND PARTICIPANTS FOR CHILDREN, ELDERLY, AND NONELDERLY DISABLED PERSONS, 1985-1994

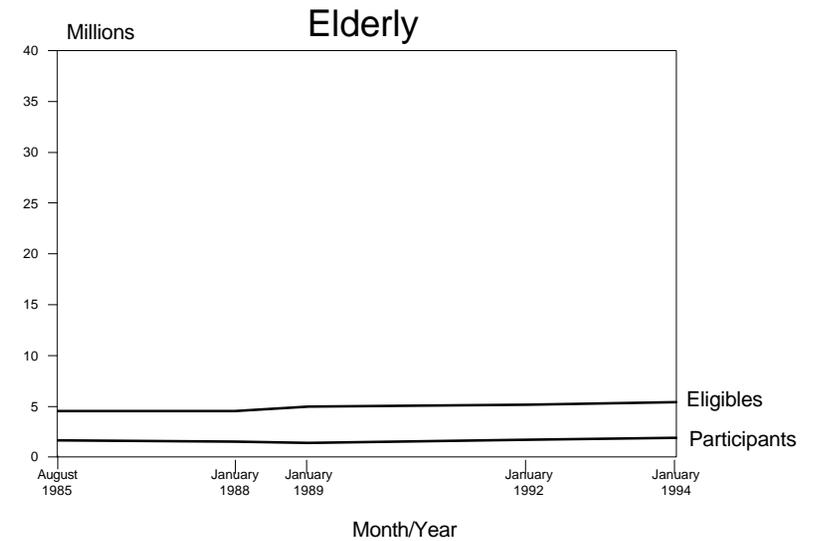
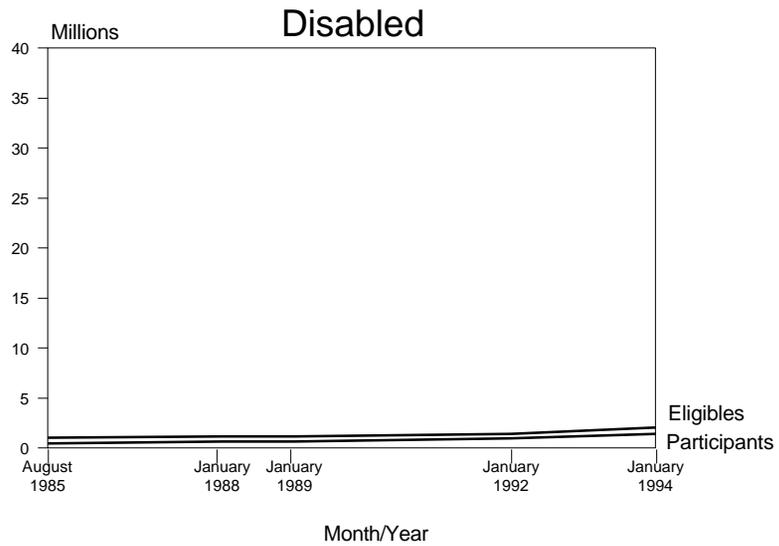
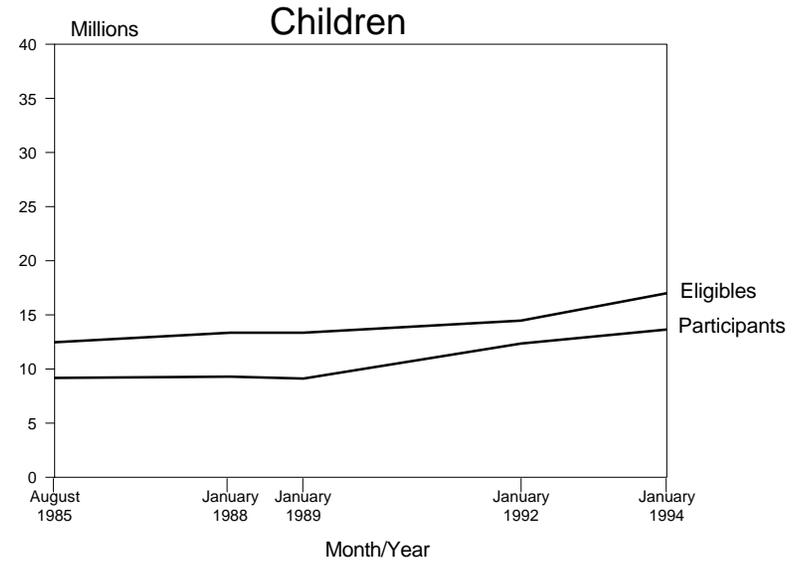
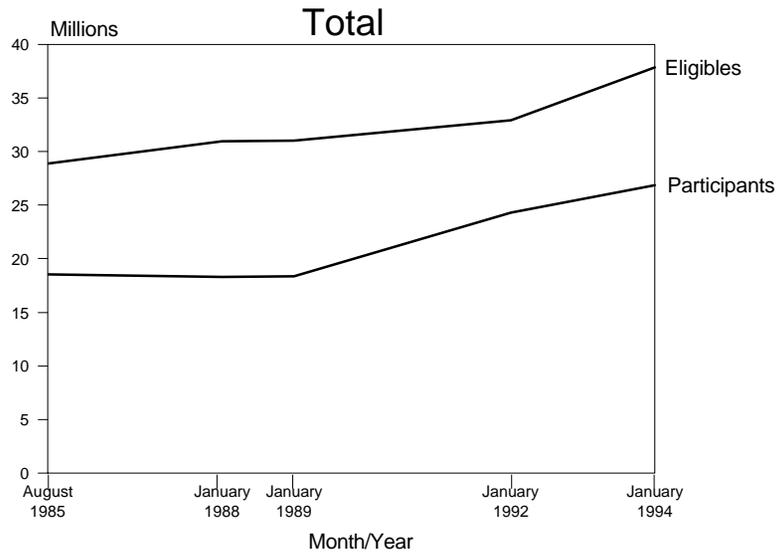


TABLE III.4

PERSON PARTICIPATION RATES
BY SELECTED DEMOGRAPHIC CHARACTERISTICS,
1985-1994

	August 1985	January 1988	January 1989	January 1992	January 1994	Difference (1992 to 1994)
Elderly Age 60 or Older	36.6%	33.5%	28.5%	33.2%	35.2%	+2.0 points
Living alone	41.3	38.4	31.5	36.3	38.9	+2.6
Living with others	30.4	26.7	24.0	28.6	29.9	+1.4
Disabled Under Age 60	47.4	55.3	57.3	67.0	70.9	+3.9
Living alone	52.4	68.6	89.9	117.5	93.0	-24.3
Living with others	44.8	49.4	44.4	48.5	60.5	+12.0
Children (Under Age 18)	73.5	69.5	68.0	85.5	80.2	-5.2
Preschool (under age 5)	75.3	74.8	73.4	94.8	92.6	-2.2
School-age (age 5-17)	72.7	67.1	65.6	80.6	73.9	-6.8
Adults Age 18 to 59	65.0	65.9	59.5	76.6	73.0	-3.6
Living alone (not disabled)	NA	67.5	84.1	112.4	117.4	+4.9
Gender						
Male	NA	58.1	57.3	74.3	69.3	-5.0
Female	NA	59.6	60.4	73.4	72.2	-1.2
Total	64.3	59.0	59.1	73.8	71.0	-2.8

SOURCES: 1994 rates are from Table II.3 of this report, 1985 rates are from Doyle (1990), 1988 rates are from Trippe and Doyle (1992), 1989 rates are from Trippe and Doyle (1992), and 1992 rates are from Trippe (1994).

NOTE: Participation rates exceeding 100 percent are due to reporting and measurement errors in SIPP (see Appendix A).

2. The Participation Rate for One-Person Households Increased, While the Rate for Larger Households Declined

The participation rate among households with one person increased by four percentage points (Table III.5), while rates for households of all other sizes decreased by between one and seven points (Appendix B). Note, however, that the participation rate for nonelderly disabled persons living alone *decreased* between 1992 and 1994. Thus, the increased participation rate of one-person households was driven by higher rates of participation among elderly persons living alone and nonelderly non-disabled persons living alone.

C. CHANGES IN PARTICIPATION RATES BY AMOUNT AND SOURCE OF INCOME, AND BY POTENTIAL BENEFIT AMOUNT

This section examines how trends in participation rates between January 1992 and January 1994 varied by household income amount, income sources, and potential benefit amount.

1. Trends in Participation Rates Were Similar for Households Above and Below the Poverty Level

Between 1992 and 1994, participation rates were nearly unchanged for households above and below the poverty level. Rates for both groups increased by about one percentage point (Table III.6, Figures III.3a and III.3b). In contrast, between 1989 and 1992, the participation rate of poor households increased by substantially more (+14 percent) than did the rate of nonpoor households (+6 percent). The apparent leap in the participation rate of households with no gross income--from 105 percent in 1992 to 143 percent in 1994--reflects an increase in the number of participating households with no gross income along with a decrease in the number of eligible households with no gross

TABLE III.5

HOUSEHOLD PARTICIPATION RATES BY SELECTED
DEMOGRAPHIC CHARACTERISTICS,
1985-1994

Household Contains	August 1985	January 1988	January 1989	January 1992	January 1994	Difference (1992 to 1994)
Elderly Age 60 or Older	37.3%	35.0%	29.0%	33.5%	35.8%	+2.4 points
Disabled under Age 60	46.7	55.2	57.4	67.4	70.9	+3.6
Children under Age 18	73.9	71.3	70.1	89.2	85.5	-3.7
Preschool (under age 5)	NA	NA	74.9	97.1	92.8	-4.3
School-age (age 5-17)	74.7	68.3	68.2	81.6	78.0	-3.6
Single Parent with Children ^a	73.1	74.9	76.4	100.0	96.8	-3.2
Single female adult	94.2	74.8	77.5	101.2	95.8	-5.4
Single male adult	62.7	45.9	56.7	78.8	114.1	+35.3
Two or More Adults w/Children ^b	75.3	66.8	60.5	77.5	72.5	-5.3
One Person	49.8	45.0	44.7	53.8	57.3	+3.5
White non-Hispanic Head	48.9	46.9	45.9	58.6	60.1	+1.5
African American Head	77.1	76.0	76.9	92.3	93.5	+1.1
Hispanic Head	54.8	54.2	50.5	61.4	62.5	+1.1
Total	59.4	56.0	55.5	68.9	68.8	-0.0

SOURCES: 1994 rates are from Table II.3 of this report, 1985 rates are from Doyle (1990), 1988 rates are from Trippe and Doyle (1992), 1989 rates are from Trippe and Doyle (1992), and 1992 rates are from Trippe (1994).

NOTE: Participation rates exceeding 100 percent are due to reporting and measurement errors in SIPP (see Appendix A).

^aIn January 1992, the SIPP-based definition of households containing a single parent with children was changed slightly in order to be consistent with the IQCS-based definition, which is households with only one nonelderly adult (age 18 to 59) and children. The change increased the participation rate over what it would have been in 1992, resulting in a 24-point increase in the 1992 rate over the 1989 rate, rather than an 18-point increase.

^bThis category includes households in which the gender of the household head is unknown and female-headed households that contain two or more adults.

NA = not available

TABLE III.6

HOUSEHOLD PARTICIPATION RATES
BY INCOME AND BENEFIT CHARACTERISTICS,
1985 - 1994

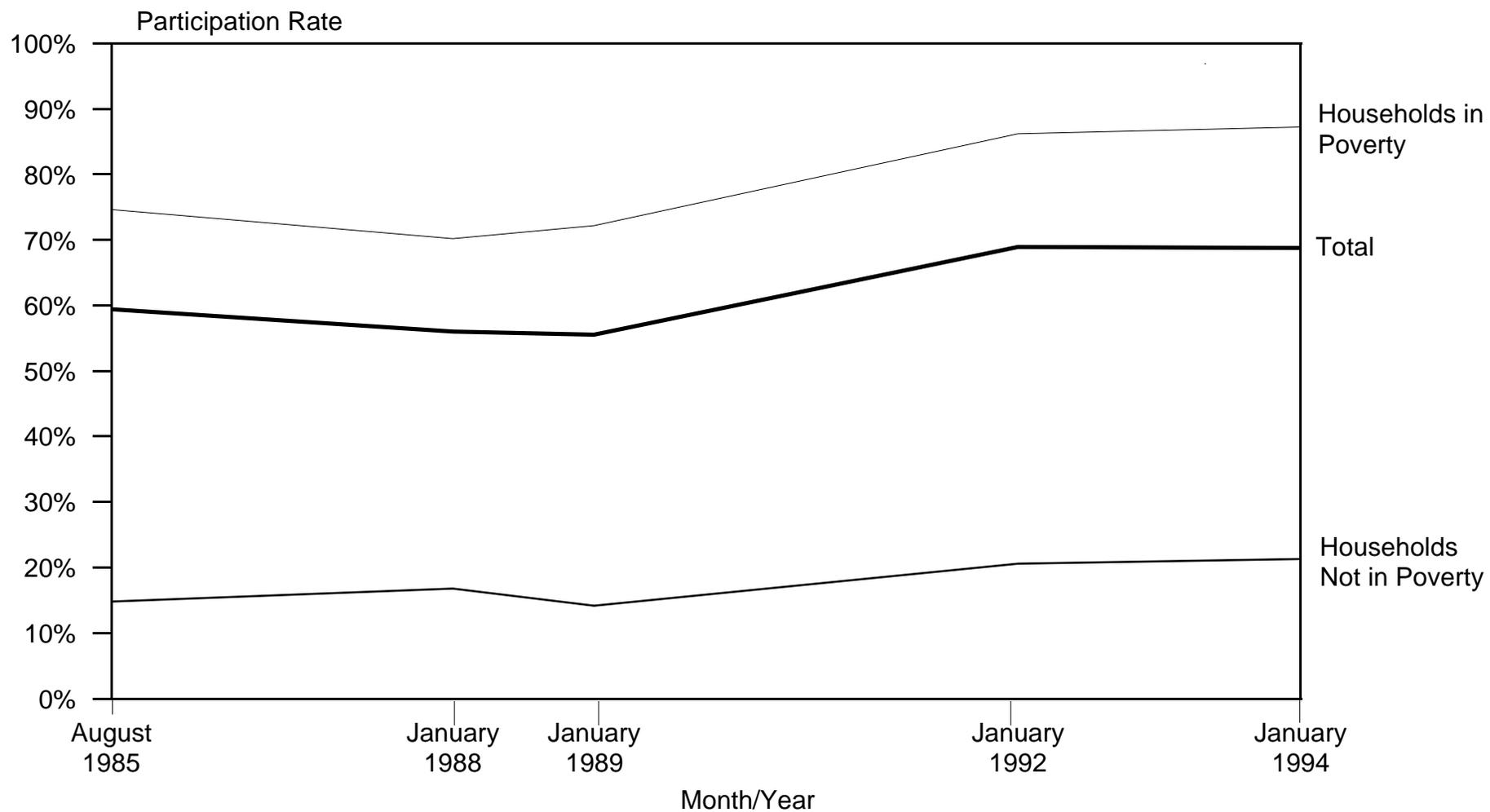
Economic Characteristic	August 1985	January 1988	January 1989	January 1992	January 1994	Difference (1992 to 1994)
Monthly Benefit Level as a Percentage of the Maximum Benefit						
1-25%	30.0%	29.9%	31.9%	33.6%	36.4%	+2.9 points
26-50%	58.3	61.5	51.1	67.2	59.2	-7.9
51-75%	86.0	68.7	72.8	80.9	82.7	+1.7
76-99%	89.1	91.0	83.4	108.7	101.6	-7.1
100%	64.3	50.5	52.8	67.2	75.6	+8.3
Income as a Percentage of Poverty						
Total ≤ 100%	74.6	70.2	72.2	86.2	87.2	+1.0
0	69.0	70.0	82.2	104.9	142.9	+37.9
1-50	92.7	78.5	86.5	102.0	99.7	-2.4
51-100	67.2	66.5	64.8	76.1	75.6	-0.5
Total > 100%	14.8	16.8	14.2	20.6	21.3	+0.7
100-130	NA	NA	15.9	24.8	25.9	+1.1
131+	NA	NA	6.4	5.6	6.0	+0.4
Source of Income						
Earned Income	36.8	33.9	32.3	48.2	45.8	-2.5
SSI	65.7	75.0	67.0	73.4	81.4	+8.0
Elderly in the unit	66.6	70.3	58.4	63.8	70.5	+6.6
No elderly in the unit	64.1	82.6	82.6	86.2	91.2	+5.0
Public Assistance	115.5	110.5	121.0	120.9	116.4	-4.5
AFDC	118.5	112.5	121.7	120.0	116.3	-3.7
Other welfare	97.4	98.9	105.7	118.8	109.7	-9.3
Unemployment Compensation	75.6	46.4	45.6	41.2	51.7	+10.5
Total	59.4	56.0	55.5	68.9	68.8	-0.0

SOURCES: 1994 rates are from Tables II.5, II.7, and II.8 of this report. 1985 rates are from Doyle (1990), 1988 rates are from Trippe and Doyle (1992), 1990 rates are from Trippe and Doyle (1992), and 1992 rates are from Trippe (1994).

NOTE: Participation rates exceeding 100 percent are due to reporting and measurement errors in SIPP (see Appendix A).

NA = not available

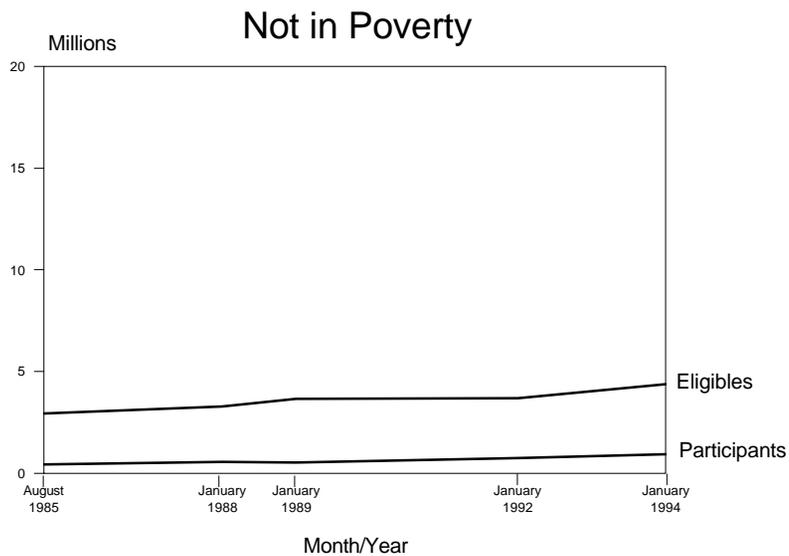
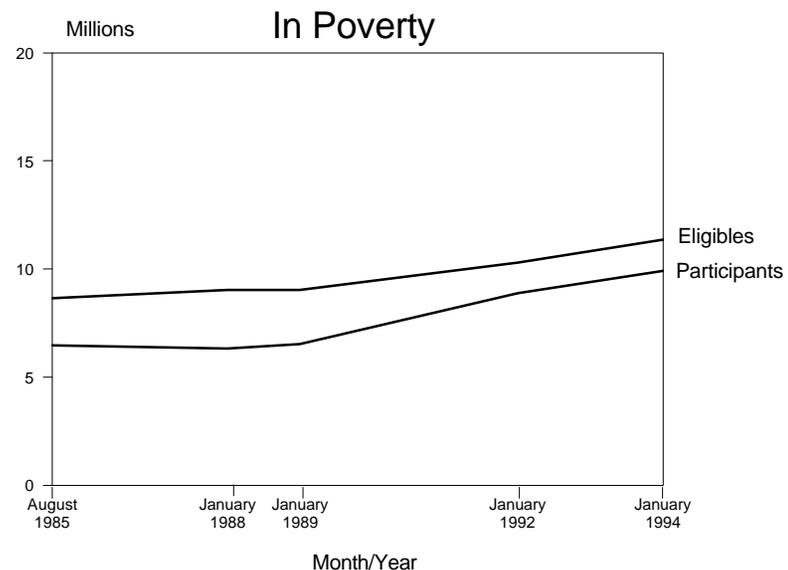
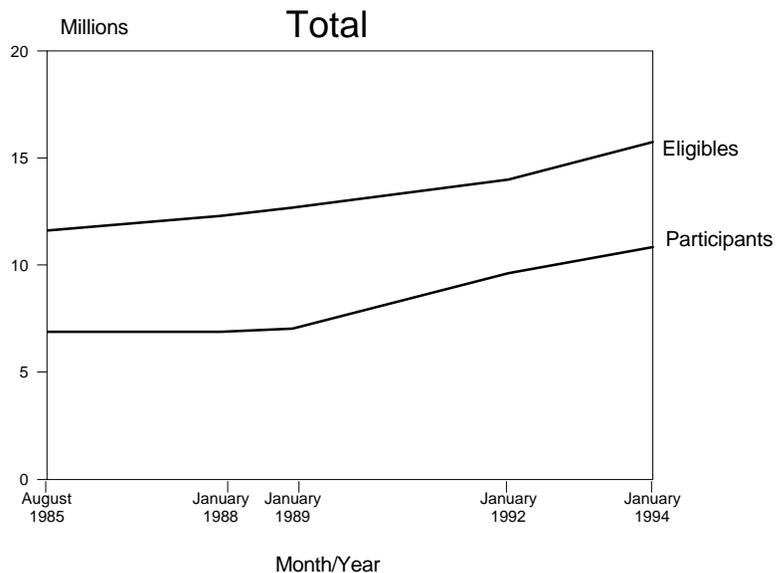
FIGURE III.3a
TRENDS IN PARTICIPATION RATES BY SELECTED ECONOMIC CHARACTERISTICS, 1985-1994



Source: Food Stamp Program Operations data, SIPP data for the years shown.

FIGURE III.3b

TRENDS IN ELIGIBLES AND PARTICIPANTS BY SELECTED ECONOMIC CHARACTERISTICS OF THE HOUSEHOLD, 1985-1994



income. That the resulting participation rate exceeds 100 percent may be attributable to sampling problems on the SIPP and IQCS data files.⁹

2. Participation Rates Increased for Households Receiving SSI or Unemployment Compensation

Between 1992 and 1994, the participation rate for households with SSI income increased (+8 percentage points), as did the rate among households receiving unemployment compensation (+11 percentage points) (Table III.6, Figures III.4a and III.4b). The upward trend among SSI households is consistent with the increased participation rate among households with disabled persons, while the trend among households with unemployment compensation was driven primarily by a substantial decrease in the number of eligible households receiving unemployment compensation (Appendix B). The participation rate for households with earnings decreased slightly (-3 percentage points) between 1992 and 1994, but this change was not statistically significant (Table III.7). Although many more households with earnings participated in the FSP (+21 percent), growth in the eligible population (+27 percent) was even more substantial, yielding a net decrease in the participation rate.

The participation rate for households receiving public assistance appears to have declined by five percentage points (from 121 percent to 116 percent), though this decrease may be due to more accurate reporting of public assistance receipt on SIPP, which would increase the number of eligibles.

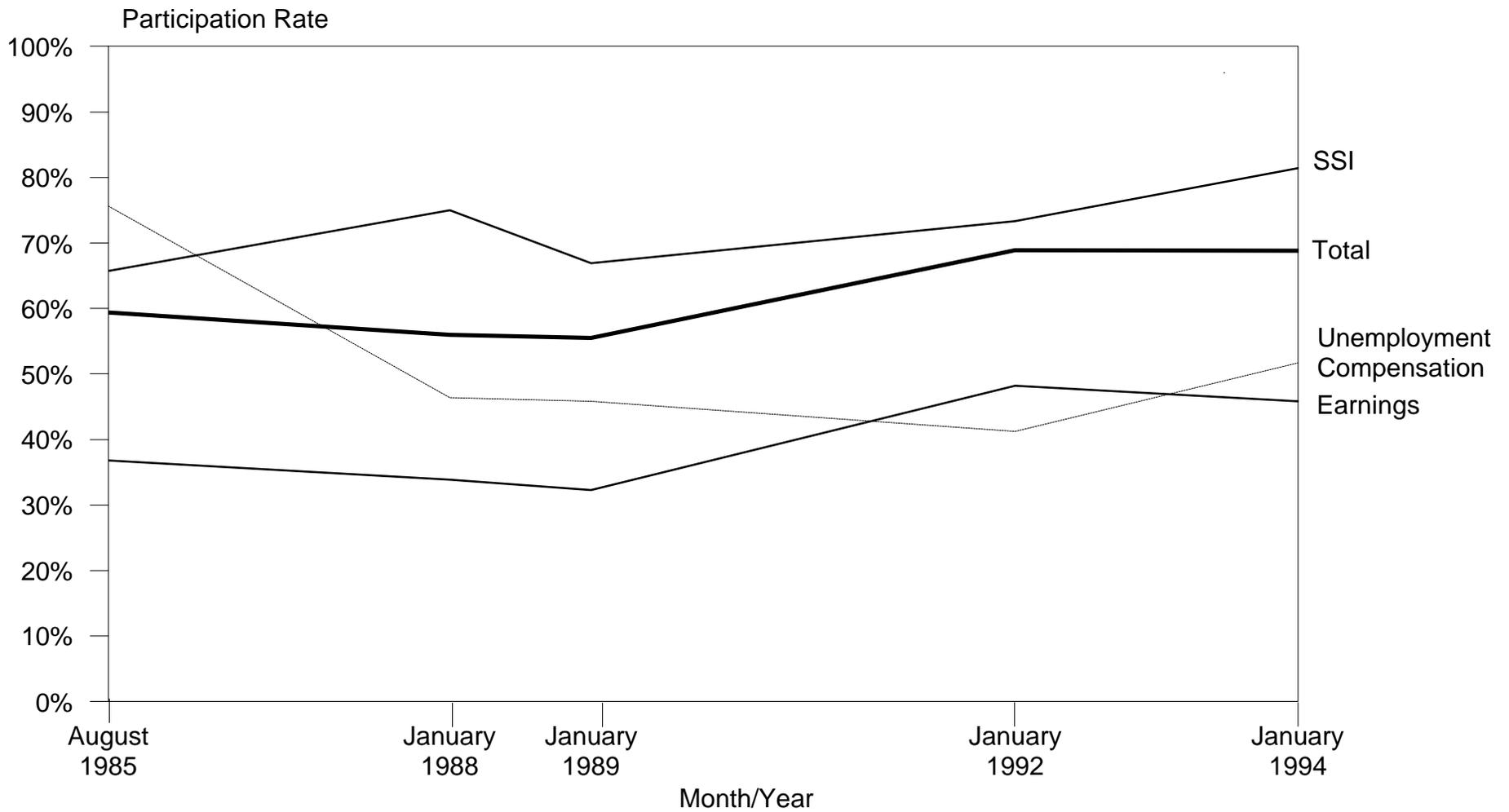
3. Participation Rates Increased Among the Lowest-Benefit and the Highest-Benefit Households

Between 1992 and 1994, participation rates increased among households eligible for 1 to 25 percent of the maximum benefit (+3 points) (Table III.6, Figures III.5a and III.5b). Rates also

⁹For example, the IQCS database may fail to capture small amounts of income, and hence overstate the number of participating households with zero income. Alternatively, SIPP may undersample zero-income households, and thus understate the number of zero-income eligibles. Both errors would upwardly bias the participation rate among zero-income households.

increased among households eligible for the maximum benefit (+8 points). Households eligible for benefits between 26 and 99 percent of the maximum benefit participated at a lower rate in 1994 (-4 points). The rate increase among low-benefit households is directly correlated with the rate increase among minimum-benefit households, which in turn is linked to higher rates of participation among one-person households (Appendix B).

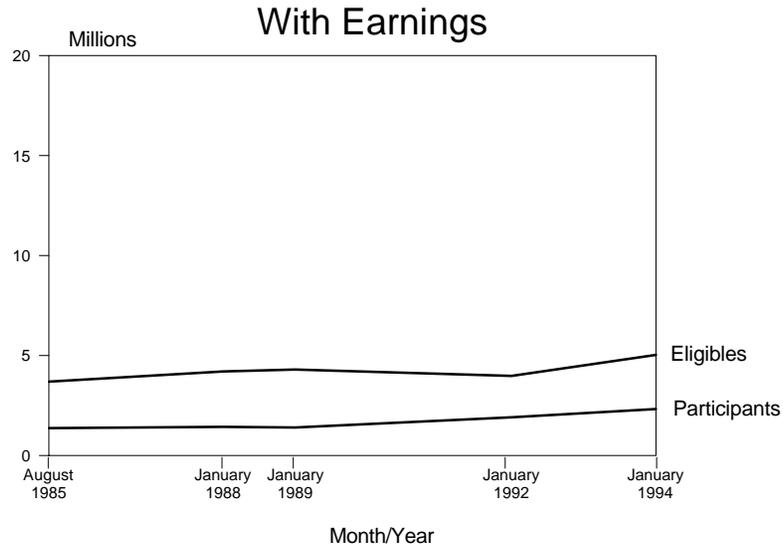
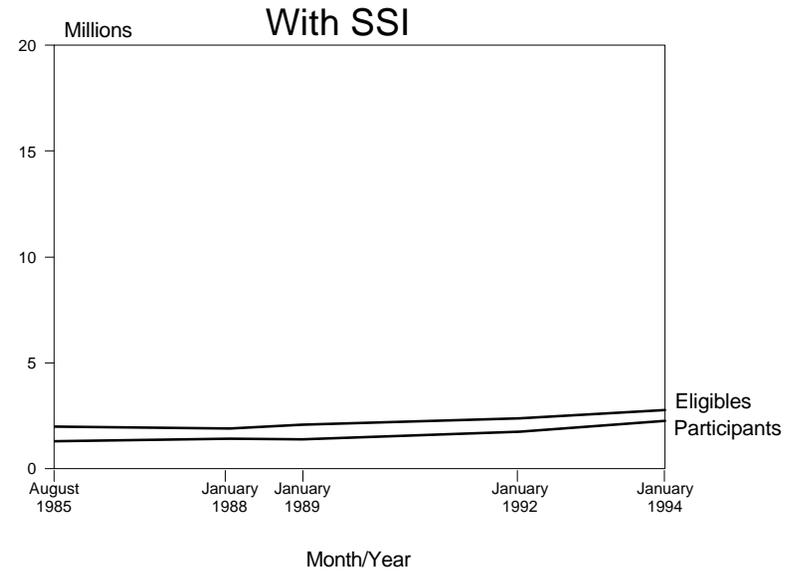
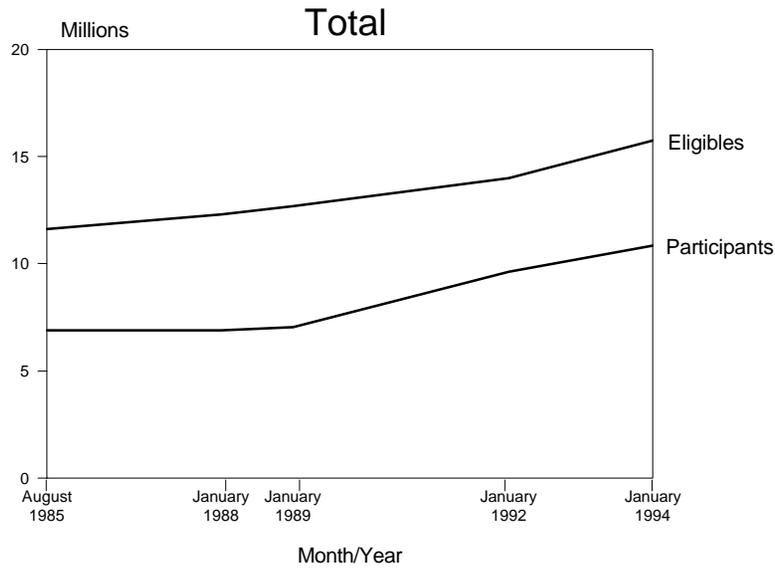
FIGURE III.4a
TRENDS IN PARTICIPATION RATES BY INCOME SOURCE OF THE HOUSEHOLD, 1985-1994



Source: Food Stamp Program Operations data, SIPP data for the years shown.

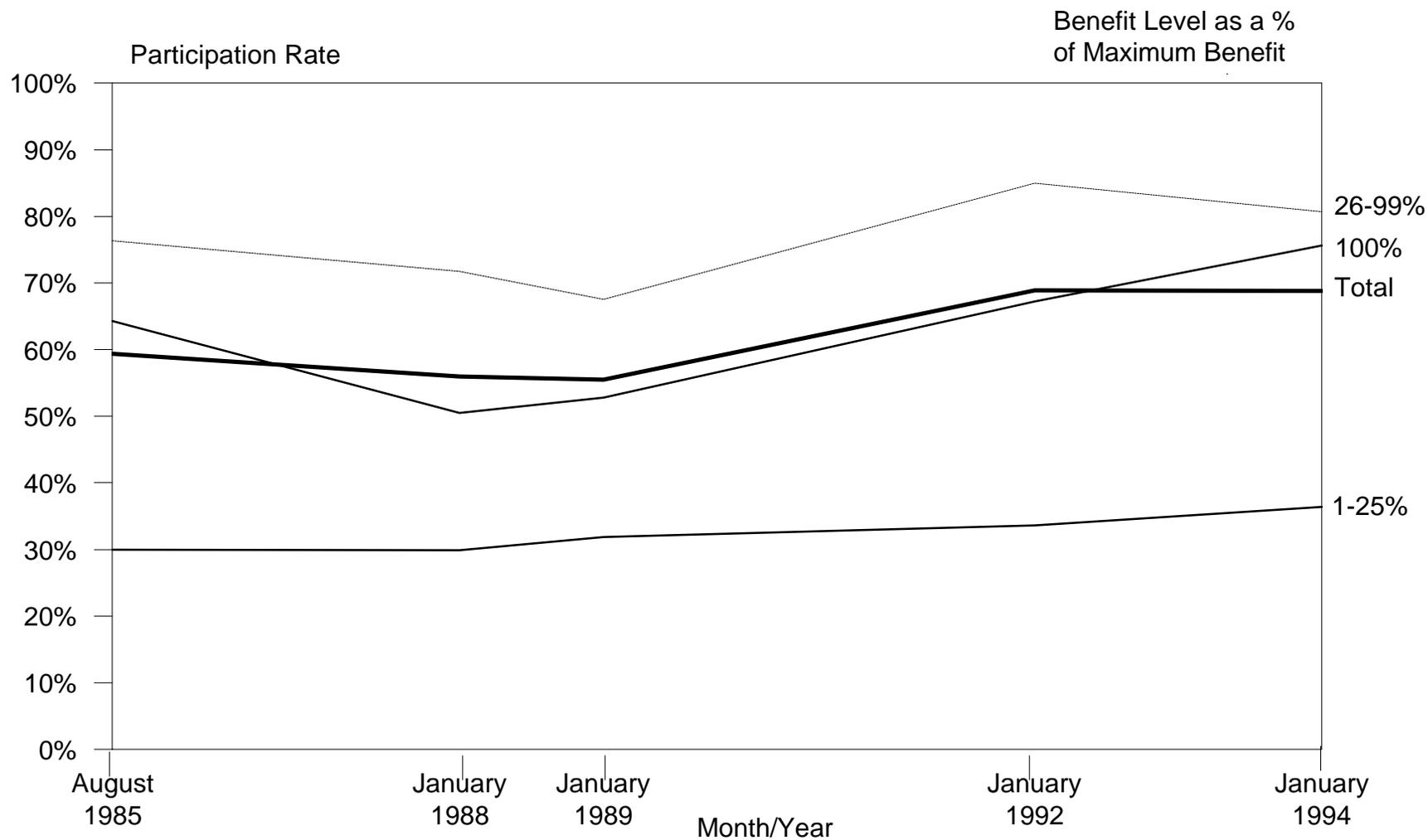
FIGURE III.4b

TRENDS IN ELIGIBLES AND PARTICIPANTS BY INCOME SOURCE OF THE HOUSEHOLD, 1985-1994



Note: For trends in the number of eligible and participating households receiving unemployment compensation, see Appendix B.

FIGURE III.5a
 TRENDS IN PARTICIPATION RATES BY BENEFIT LEVEL AS A PERCENTAGE OF THE MAXIMUM
 BENEFIT, 1985-1994



Source: Food Stamp Program Operations data, SIPP data for the years shown.

FIGURE III.5b
TRENDS IN ELIGIBLES AND PARTICIPANTS BY BENEFIT LEVEL AS A PERCENTAGE OF THE MAXIMUM BENEFIT, 1985-1994

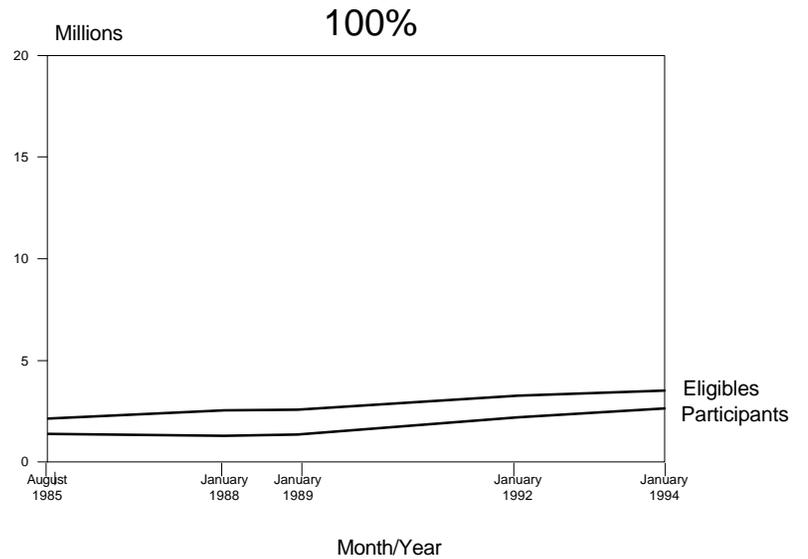
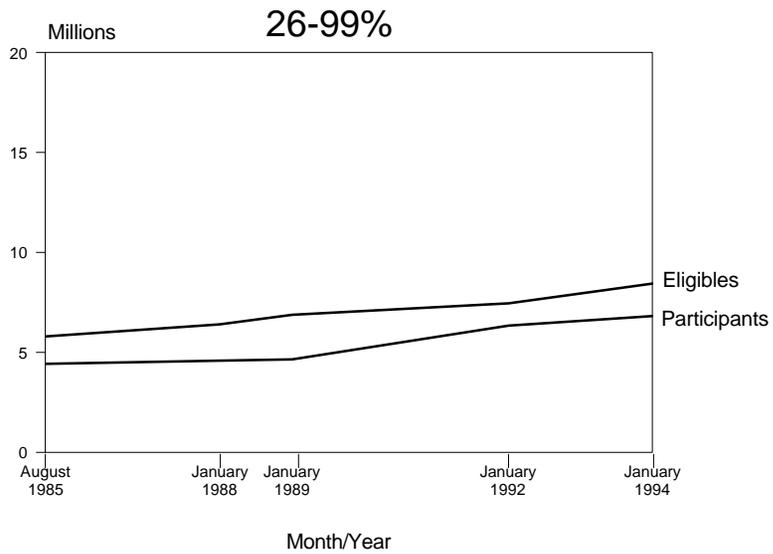
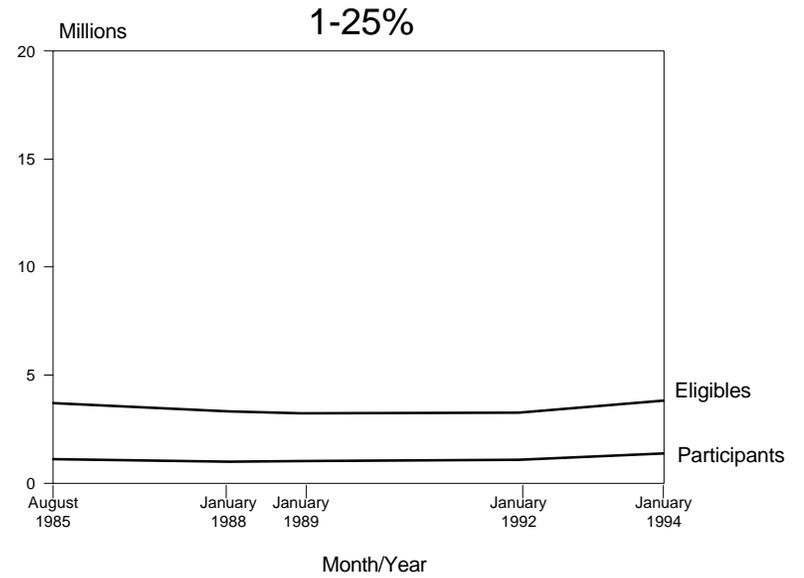
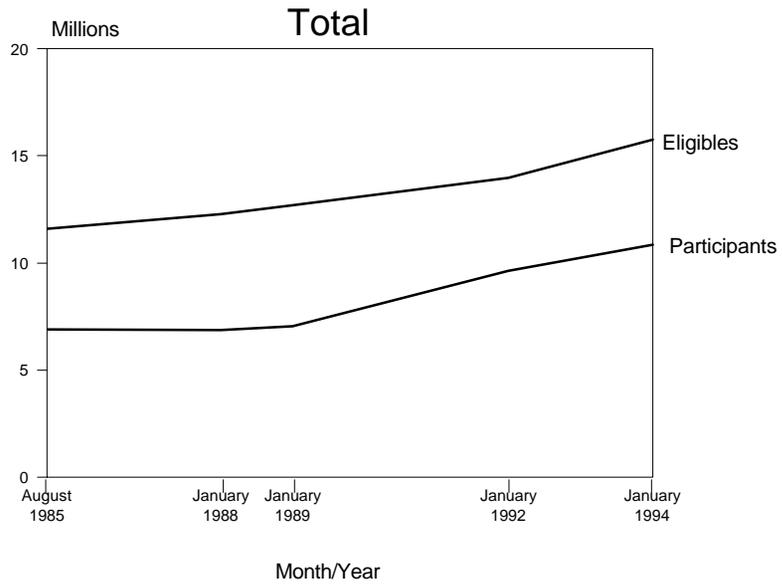


TABLE III.7

STATISTICAL SIGNIFICANCE OF CHANGES IN FSP PARTICIPATION RATES
BETWEEN JANUARY 1992 AND JANUARY 1994

Population Subgroup	Participation Rate		Change in Participation Rate (1992 to 1994)	80 Percent Confidence Interval of Rate Change ^a
	1992	1994		
Total Households	68.9%	68.8%	-0.1 points	±1.8 points
Total Participants	73.8	71.0	-2.8	±2.6
Total Benefits	81.5	81.2	-0.3	±3.2
Children (Under Age 18)	85.5	80.2	-5.2	±4.0
Non-Elderly Adults	76.6	73.0	-3.6	±2.9
Elderly Age 60 or Older	33.2	35.2	2.0	±2.9
Disabled Under Age 60	67.0	70.9	3.9	±8.0
Single-Parent Households With Kids ^b	100.0	96.8	-3.2	±6.2
Households with Minimum Benefit	19.4	23.2	3.8	±3.1
Households with Maximum Benefit	69.9	77.2	7.3	±5.6
Households with Earnings	49.0	46.2	-2.8	±3.5
Households with SSI	73.4	84.2	10.8	±6.5
Households with Public Assistance	78.8	78.2	-0.6	±4.0
Households with Unemployment Insurance	41.2	53.5	12.3	±10.8

SOURCES: January 1992 and 1994 Food Stamp Program Operations data adjusted for issuance error. Special tabulations from IQCS data for January and February 1992 and 1994

January 1992 and 1994 MATH SIPP model

NOTE: Participation rates exceeding 100 percent are due to reporting and measurement errors in SIPP (see Appendix A).

^aIf the change in the participation rate falls outside the 80 percent confidence interval, we can be 80 percent certain that the observed change is statistically significant.

^bHouseholds containing a single parent with children are defined as households with only one nonelderly adult (age 18 to 59) and children.

IV. CHARACTERISTICS OF ELIGIBLE NONPARTICIPATING HOUSEHOLDS IN JANUARY 1994

Although 27 million people participated in the FSP in January 1994, 11 million eligible people (29 percent of all eligibles) did not participate. These eligible nonparticipants accounted for 5 million households and were eligible for \$423 million in monthly benefits. The literature on eligible nonparticipants (Allin and Beebout 1989) suggests various reasons for nonparticipation. Some may be unaware of the program. Others may presume that they are not eligible for benefits. Others may be aware of the program and their eligibility, but feel that the benefits are not worth the effort required to obtain and use them. Still others may not participate because of the perceived stigma associated with using food stamps.

This chapter examines the demographic and economic characteristics of eligible nonparticipants in January 1994 and identifies which groups of eligibles had the largest proportion of nonparticipants. In summary, eligibles with the largest percentage of nonparticipants included:

- Elderly persons
- Households headed by a white non-Hispanic person
- Households with income above the poverty level and those with earned income
- Households eligible for the lowest food stamp benefits

A. DEMOGRAPHIC CHARACTERISTICS OF ELIGIBLE NONPARTICIPATING HOUSEHOLDS

In January 1994, most eligible nonparticipating households contained an elderly person (63 percent), most were headed by a white non-Hispanic (69 percent), and most consisted of only one person (56 percent) (Table IV.1). These groups generally had below-average participation rates (36 percent for households with elderly, 60 percent for households headed by a white non-Hispanic, and

TABLE IV.1

DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS OF ELIGIBLE
NONPARTICIPATING HOUSEHOLDS, JANUARY 1994

	Population (in Thousands)	Distribution of Households (Percentage)
Household Size		
1	2,759	56.2
2	758	15.4
3	333	6.8
4	434	8.8
5	297	6.1
6+	328	6.7
Household Composition		
Elderly	3,083	62.8
Disabled	565	11.5
Children (Under Age 18)	1,104	22.5
Preschool children (under age 5)	296	6.0
School-age children (age 5 to 17)	1,280	26.1
Single Parent with Children	150	3.1
Two or More Adults with Children	762	15.5
White non-Hispanic Head	3,406	69.4
Black non-Hispanic Head	263	5.4
Hispanic Head	980	20.0
Income as a Percentage of Poverty		
Total ≤ 100%	1,451	29.6
Total > 100%	3,458	70.4
Household Income		
Earnings	2,725	55.5
SSI	516	10.5
AFDC	-592	-12.1
Unemployment Compensation	239	4.9
Total Households	4,909	100.0

SOURCES: January 1994 Food Stamp Program Operations data, adjusted for issuance error. Special tabulations from IQCS data for January and February 1994.

January 1994 MATH SIPP model, Wave 7 of the 1992 Panel and Wave 4 of the 1993 Panel of SIPP.

NOTE: Eligible nonparticipants are computed as the difference between eligibles and participants. Negative entries are due to reporting and measurement errors in SIPP, which cause the number of eligibles to be less than the number of participants.

57 percent for single-person households, compared with 69 percent for all households). Only 23 percent of all eligible nonparticipating households contained children, and virtually none contained a single parent with children. Only 5 percent had an African American head of household.

B. ECONOMIC CHARACTERISTICS OF ELIGIBLE NONPARTICIPATING HOUSEHOLDS

Compared with participating households, eligible nonparticipating households tend to have higher income and be eligible for smaller benefits. More than 70 percent of eligible nonparticipating households had a gross income above the poverty level, and 56 percent had earned income (Table IV.1). Moreover, 49 percent of eligible nonparticipating households were eligible for less than 25 percent of the maximum benefit (Table IV.2). It is not surprising that these households make up the bulk of eligible nonparticipants, given their low participation rates (21 percent for households below poverty, 46 percent for households with earnings, and 36 percent for low-benefit households).

Not all eligible nonparticipating households were high-income, low-benefit households. A sizable minority (30 percent) had income below the poverty level, and these households accounted for 55 percent of total potential benefits to eligible nonparticipating households. Also, 17 percent of eligible nonparticipating households were eligible for the maximum benefit. As discussed in Chapter II, however, households eligible for the maximum benefit participate at an unexpectedly low rate. Of the nonparticipating households that were eligible for the maximum benefit, 61 percent contained elderly persons, most of whom lived alone (Table IV.3). Both of these characteristics are associated with low participation rates.

TABLE IV.2
DISTRIBUTION OF ELIGIBLE NONPARTICIPATING HOUSEHOLDS
ABOVE AND BELOW POVERTY,
JANUARY 1994

	Below Poverty	Above Poverty	Total
Benefit Level as a Percentage of Maximum Allotment			
1-25%	6.6%	42.8%	49.4%
26-50	6.7	16.9	23.5
51-99	2.5	7.1	9.6
100	13.8	3.6	17.4
Household Composition			
Elderly Present	27.1	35.7	62.8
Living alone	16.2	23.3	39.5
Living with others	10.9	12.4	23.3
Nonelderly Households with Earnings			
With children	12.0	18.4	30.4
Without children	8.0	9.7	17.7
Total	29.6	70.4	100.0
Eligible Nonparticipating			
Persons (in thousands)	4,024	6,970	10,993
Households (in thousands)	1,451	3,458	4,909
Benefits (in thousands)	\$232,696	\$190,367	\$423,064

SOURCES: January 1994 Food Stamp Program Operations data, adjusted for issuance error. Special tabulations from IQCS data for January and February 1994.

January 1994 MATH SIPP model, Wave 7 of the 1992 Panel and Wave 4 of the 1993 Panel of SIPP.

NOTE: Eligible nonparticipants are computed as the difference between eligibles and participants. Reporting and measurement errors in SIPP can cause the number of eligibles to be less than the number of participants, resulting in a negative number of eligible nonparticipants. For example, elderly households and nonelderly households with earnings comprise 62.8 percent and 48.1 percent of eligible nonparticipants, respectively. The omitted group, nonelderly households without earnings, comprises -10.9 percent of eligible nonparticipating households.

TABLE IV.3

DISTRIBUTION OF ELIGIBLE NONPARTICIPATING
HOUSEHOLDS BELOW POVERTY THAT ARE ELIGIBLE FOR
THE MAXIMUM FOOD STAMP BENEFIT,
JANUARY 1994

Household Composition	Population (in Thousands)	Distribution of Households (Percentage)
Elderly Present	421	61.1
Living alone	303	43.9
Living with others	118	17.2
Nonelderly Households with Earnings	174	25.3
With children	43	6.3
Without children	131	19.0
Nonelderly Households without Earnings	93	13.6
Income as a Percentage of Poverty		
0-50	279	40.3
51-100	409	59.4
Total Households	689	100.0

SOURCES: January 1994 Food Stamp Program Operations data, adjusted for issuance error. Special tabulations from IQCS data for January and February 1994.

January 1992 MATH SIPP model, Wave 7 of the 1992 Panel and Wave 4 of the 1993 Panel of SIPP.

NOTE: Eligible nonparticipants are computed as the difference between eligibles and participants.

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APPENDIX A

**METHODOLOGY AND DATA SOURCES USED TO
ESTIMATE FSP PARTICIPATION RATES
IN JANUARY 1994**

In this appendix, we describe the data and methodology used to construct the January 1994 FSP participation rates.¹ First, we describe the data and methodology used to estimate the number of participants. Then, we describe the creation of the SIPP-based eligibility file and explain how the MATH-SIPP model uses this data file to simulate FSP eligibility. Finally, we assess the deficiencies of the eligibility simulation.²

A. USING ADMINISTRATIVE DATA TO ESTIMATE THE NUMBER OF PARTICIPANTS

Because FSP participation is underreported in the SIPP (as in all national household surveys), participant counts in this report are based on FSP Program Operations data, which are derived from a monthly census of actual FSP participation and benefit issuance.³ These data were adjusted to exclude Guam and the Virgin Islands, which SIPP does not include, then further adjusted to exclude benefits issued to ineligible households and benefits issued in error. The FSP caseload in January 1994 was reduced by 2.83 percent and FSP benefits were reduced by 4.98 percent to adjust for these payment errors. The adjusted number of FSP participants in January 1994 was 10.8 million households and 15.7 million persons. Total benefits paid to these participants was \$1.8 billion.

To estimate the distribution of participants and benefits across subgroups of the FSP population--such as households with children, single parents, or workers--we needed information on the

¹The methods used to estimate the SIPP-based participation rates in this report are nearly identical to the methods used in earlier reports in this series.

²For a more detailed discussion of the methodology used to estimate the number of food stamp eligibles, see the report "Creation of the January 1992 FOSTERS Microsimulation Model and Database" (Sykes 1994).

³FSP participation was underreported in SIPP by 28 percent in January 1994. Only 8.0 million units reported participating in the FSP in SIPP in January 1994, compared to 11.2 million units that were actually issued benefits based on Program Operations data. The 28 percent discrepancy between SIPP-based and Program Operations-based counts of FSP participants is higher than past discrepancies: 22 percent in January 1992, 12 percent in January 1989, and 14 percent in January 1988.

distribution of the FSP caseload by demographic and income characteristics. Since Program Operations data do not provide this information, we used a two-month (January/February 1994) sample of food stamp case records from the FSP Integrated Quality Control System, or IQCS.⁴ Based on this sample, we estimated the percentage of participants or benefits in selected subgroups, then applied those percentages to Program Operations totals.

B. USING SIPP DATA TO ESTIMATE THE NUMBER OF ELIGIBLES

Estimates of food stamp eligibles and potential benefits in January 1994 are derived using a representative sample of households in the U.S. and a microsimulation model (MATH SIPP) that determines whether each household is eligible to receive food stamps. The household sample used for this report consists of households in the SIPP universe in January 1994, including both Wave 7 of the 1992 Panel and Wave 4 of the 1993 Panel.

Much of the effort in estimating the number of eligibles was spent preparing a SIPP file that contained all the information needed to simulate FSP eligibility. A series of 30 programs was used to merge information from various SIPP data products into a single data file. Then the MATH SIPP model determined whether each household on the file was eligible to receive food stamps based on eligibility criteria in effect in January 1994. Finally, the model calculated the benefit amount for which each eligible household qualified.

1. What is SIPP?

SIPP is a nationally representative longitudinal survey providing detailed monthly information on household composition, income, assets, labor force activity, and participation in various

⁴The IQCS database is a representative sample of the national food stamp caseload. Using IQCS cases from January and February, rather than just January, doubles the sample size and increases the accuracy of the resulting estimates.

government programs, such as Medicaid, AFDC, SSI, and the FSP. Since the determination of FSP eligibility is based on this information, SIPP is an ideal starting point for simulating eligibility.

Almost every year, the Census Bureau selects a new SIPP sample, or panel, of approximately 20,000 households, and follows them for approximately two and a half years, interviewing persons in the household every four months.⁵ In each round of interviewing (or “wave”), a core questionnaire is administered, yielding information on each of the four months preceding the interview date. In most waves, the core questions are supplemented with questions on a variety of topical issues that vary from wave to wave. Because the interviewing process is staggered, the reference period covered in any given wave is not the same for all sample members. When the reference periods of two panels overlap, the panels can be combined, thereby doubling the sample size for a given calendar month.

Wave 4 of the 1993 panel and Wave 7 of the 1992 panel overlapped in January 1994. The topical modules administered in Waves 4 and 7, also known as the eligibility modules, focus on characteristics pertinent to the determination of FSP eligibility, such as vehicle ownership, asset holdings, dependent care expenses, medical expenses, and shelter expenses. Combining these two panels yields a total of 36,812 interviewed households. This sample represents an estimated U.S. population of 253 million persons and 98 million households.

2. Creating the MATH SIPP Database

The core questionnaire of SIPP provided most of the information needed to model FSP eligibility. The topical module questionnaire and the initial Wave 1 questionnaire provided the rest. Since the

⁵The interviewed population is based on a multistage stratified sample of the noninstitutionalized resident population of the United States. This includes persons living in households, as well as persons living in group quarters such as college dormitories and rooming houses. Inmates of institutions, such as homes for the aged, and persons living abroad are not included. Persons residing in military barracks, although part of the noninstitutionalized population, are also excluded. Other armed forces personnel are included, as long as they are living in a housing unit on or off base (U.S. Department of Commerce 1993).

Census Bureau distributes this information as separate data products, we had to combine the files to create the MATH SIPP database.

Since each wave contains four months of data, we began by selecting all households that were present in January 1994 from Wave 7 of the 1992 Panel and Wave 4 of the 1993 Panel. From that, we extracted most of the data needed for our simulation. Data elements not contained in the core questionnaire were either extracted from other SIPP products, or imputed using a statistical matching technique. More detailed information on the creation of the model database is in Sykes (1994).

3. Simulating FSP Eligibility

Having gathered the data needed to determine FSP eligibility, we used the MATH-SIPP microsimulation model to determine whether each household was eligible to receive food stamps in January 1994. In this section we describe how the MATH-SIPP model made this determination.⁶

a. Identifying Household Members Who Belong in the Food Stamp Unit

Since the FSP eligibility rules apply only to persons in the food stamp unit, deciding who belongs in the unit is very important. Generally, individuals who live in a residential unit and customarily purchase and prepare food together constitute a household (or food stamp unit) as defined by the FSP, though there are exceptions to this rule. The SIPP is not entirely suitable for identifying who is in the food stamp unit, since the survey does not capture food purchasing and preparation information. However, we can infer which persons would probably be in the food stamp unit based on other information in SIPP. Our inference was based on the following rules:

⁶The discussion that follows is an overview of how we modeled the regulations that govern FSP eligibility and benefits. We omit from this discussion aspects of the FSP that were not modeled. The complete regulations appear in the *Code of Federal Regulations* (CFR, parts 270-273).

- If the household reports receipt of food stamps, persons who report being covered by food stamps are in the food stamp unit. Everyone else is excluded. Multiple food stamp units in a household are allowed only if they were reported in SIPP as such.
- If the household does not report receipt of food stamps but reports receipt of some other form of public assistance (SSI, AFDC, means-tested veteran's benefits, or other welfare like General Assistance), the unit includes those persons covered by the program, in addition to their spouses and children under age 18. This assumes that the reported public assistance unit would continue to represent themselves as one unit in the FSP, even though they may purchase and prepare food with other persons in the household.
- If the household does not report receipt of food stamps or public assistance, everyone in the household is included in the food stamp unit.
- SSI persons living in California, postsecondary students meeting certain criteria, and all persons in group quarters are excluded.

These rules were formulated in earlier research and have evolved over time (Doyle and Post 1988, Doyle et al. 1987).

b. Simulating FSP Eligibility and Potential Benefits

The MATH SIPP model acts as an FSP caseworker. Based on the FSP eligibility criteria in effect in January 1994, it determines whether a unit is eligible to receive food stamps—a function of the unit's income and assets. If the unit is income- and asset-eligible, the model then calculates the food stamp benefit for which the unit is eligible. This section summarizes the FSP eligibility rules as simulated in the model (see Table A.1 at the end of this appendix for selected January 1994 FSP eligibility parameters).

Determining Asset Eligibility. To be eligible for the FSP in January 1994, a food stamp unit could have no more than \$2,000 in countable assets, or \$3,000 if the food stamp unit contained an elderly person. Units composed entirely of persons on public assistance (SSI, AFDC, or GA) were considered categorically eligible based on the Food Stamp Act.

Countable assets included financial and vehicular assets. Most financial and nonfinancial assets were considered countable, although selected pieces of property such as the principal home, adjacent land, and most household goods were not included.⁷ In most instances, assets were counted at their equity value (i.e., value minus debt). One principal exception was the treatment of vehicular assets. Vehicles used for producing income or transporting disabled individuals were not counted, and vehicles required for work-related transportation were valued at the current *Blue Book* listing less \$4,500. Using SIPP data, we can determine which vehicles to disregard entirely, but we cannot determine which vehicles were used for work-related transportation. Hence, we assumed that at most one vehicle per unit (the newest one) was used for this purpose. All remaining vehicles owned by members of the unit were valued at the larger of either the vehicle's equity value or the vehicle's market value in excess of \$4,500.

Determining Income Eligibility. To be income eligible, the unit's gross income could not exceed 130 percent of the federal poverty guideline, and the unit's net income could not exceed 100 percent of the federal poverty guideline.⁸ There were two exceptions to these rules. First, units that contained an elderly or disabled person were exempt from the gross income test. Second, units composed entirely of persons on public assistance (SSI, AFDC, or GA) were exempt from both income tests. Net income was computed by subtracting, from gross income, the following five deductions:

- Standard deduction of \$131 (continental U.S.), \$223 (Alaska), or \$185 (Hawaii).

⁷For example, countable financial assets included money in savings accounts, money markets, certificates of deposit, interest-earning checking accounts, stock and mutual funds, and money in interest retirement accounts and KEOGH accounts (less an early withdrawal penalty fee).

⁸The poverty guidelines are published by the U.S. Department of Health and Human Services, and are adjusted each year to account for inflation. These poverty guidelines, and other FSP parameters, are generally the same for the 48 contiguous states and the District of Columbia, with separate values for Alaska, Hawaii, and the U.S. territories.

- Earnings deduction equal to 20 percent of earnings, in recognition of taxes and work-related expenses.
- Dependent care expense deduction of no more than \$160 per dependent.
- Medical expense deduction equal to the unit's total medical expenses in excess of \$35, as long as these expenses were incurred by elderly or disabled persons.
- Excess shelter expense deduction equal to the unit's shelter expense in excess of 50 percent of the unit's income after the previous four deductions are taken. For those units without an elderly or disabled person, this deduction is subject to a cap of \$207 (continental U.S.), \$359 (Alaska), or \$295 (Hawaii). The shelter expense includes the unit's reported utility expenses or the standard utility allowance, whichever is larger.

Determining Food Stamp Benefit Amount. A unit's potential benefit was computed by subtracting 30 percent of the unit's net income from the unit's maximum benefit level. Eligible one- and two-person units received a minimum benefit of \$10. Units that passed the income and asset tests, but qualified for a benefit of \$0 were considered to be ineligible for the food stamp program (unless eligible for the minimum benefit).

C. AN ASSESSMENT OF THE ELIGIBILITY SIMULATION

The procedure used to estimate the eligible population was designed to replicate the eligibility determination process for each household on the SIPP analysis file as closely as possible. In other words, we applied the program eligibility and benefit criteria outlined earlier to each household as if it had actually applied for food stamps.

The SIPP eligibility module contains most of the information needed to determine FSP eligibility and benefits, but some problems remain. All the simulation procedures described earlier cannot

perfectly replicate the eligibility and benefit determination process mandated in the legislation. The specific discrepancies are as follows.

- ***Unit definition.*** Because SIPP does not measure the complete set of characteristics that are used to determine who is in a food stamp unit (especially information on which dwelling-unit members customarily purchase and prepare food together), the simulated food stamp unit could differ from the actual food stamp unit. To determine who was in the food stamp unit, we followed several rules. If a SIPP household reported receipt of FSP benefits, the simulated unit was identical to the reported unit. Multiple food stamp units were allowed only if they were reported as such in SIPP. If a SIPP household reported receipt of cash assistance, but not food stamps, the simulated unit included the cash assistance unit plus any spouses or related children under age 18. In all other cases, the simulated food stamp unit included the entire SIPP household. Landa (1987) and Doyle and Dalrymple (1987) discuss using SIPP to construct food stamp households.
- ***Countable assets.*** We used the financial, nonfinancial, and vehicular assets reported in SIPP to estimate countable assets according to FSP rules. However, SIPP does not explicitly provide all the measures necessary for this purpose, such as cash on hand and vehicular equity.
- ***Gross income.*** The measure of gross income used in this study was close to, but not precisely the same as, gross income reported to the food stamp caseworker. First, survey data on income and program participation, such as the data collected in SIPP, tend to be underreported. For example, the number of AFDC families in SIPP in January 1994 was only 72 percent of the total number of AFDC families based on AFDC administrative data. Second, the definition of income for purposes of food stamp eligibility is not precisely the same as income measured in SIPP. For example, the Food Stamp Program counts net self-employment earnings averaged over a period of up to one year, whereas SIPP measures self-employment draw. Third, as noted earlier, unit composition simulated with SIPP data can differ from the FSP caseworker's determination of unit composition. In these cases, aggregated income for the food stamp unit may differ as well.
- ***Net income.*** The measure of net income for this file was not exactly the same as net income measured by the caseworker because the SIPP definitions of shelter and dependent-care expenses differ slightly from the FSP definitions. For example, utility expenses were not disaggregated by use (heating, cooling, telephone), which affects the application of the standard utility allowance.

- ***Disability status.*** We relied on reported disability and reported income receipt as specified under the program to determine disability. Reporting and measurement errors in SIPP may distort the number of disabled individuals identified in this manner.
- ***Measurement error.*** Several forms of nonsampling errors affect the eligibility simulation, including the underreporting of income and program participation noted earlier, and the misclassification of benefit and income types. Of particular concern is the existence of persons who report participation in SSI or public assistance programs at the same time that they report income or assets in excess of the eligibility limits for those programs (that is, "seemingly ineligible" participants).

The net effect these discrepancies have on the estimated number of FSP eligibles is uncertain. Underreporting of gross income will bias the estimates of eligible households upward, since more households will appear to pass the income tests. Also, under the automatic eligibility provision of the Food Security Act of 1985, households comprised entirely of "seemingly-ineligible" SSI or public assistance participants are treated as eligible for food stamps even though their income and assets exceed food stamp eligibility limits. To the extent that the income or asset data of these seemingly ineligible households is correct (and the reported participation data is incorrect), the number of food stamp-eligible households is overstated.

On the other hand, the imprecise measures of some types of expenses may bias the measurement of net income upward, thus reducing the estimated number of eligible households. Finally, the underrepresentation of some groups of individuals may downwardly bias the estimated number of eligibles. As illustrated earlier, the SIPP data seem to significantly underrepresent households that receive public assistance and those that have very low incomes. These households form a large portion of the eligible and participating populations, and the underrepresentation of these households on SIPP causes some of the corresponding participation-rate estimates to exceed 100 percent.⁹

⁹See Doyle (1990) for a more detailed discussion of the impact of measurement and reporting errors on measures of food stamp eligibility.

TABLE A.1
JANUARY 1994 FSP ELIGIBILITY PARAMETERS

Household Size	Maximum Food Stamp Benefits			Net Income Screen ^a			Minimum Benefit
	48 + D.C.	Alaska	Hawaii	48 + D.C.	Alaska	Hawaii	
1	\$112	\$147	\$188	\$581	\$725	\$670	\$10
2	206	271	345	786	982	905	10
3	295	388	495	991	1,239	1,140	0
4	375	492	628	1,196	1,495	1,375	0
5	446	585	746	1,401	1,752	1,610	0
6	525	702	895	1,606	2,009	1,845	0
7	591	776	990	1,811	2,265	2,080	0
8	676	887	1,131	2,016	2,522	2,315	0
+	85	111	141	205	257	235	0

	48 + D.C.	Alaska	Hawaii
Standard Deduction	\$131	\$223	\$185
Excess Shelter Deduction Cap	207	359	295
Child Care Deduction Cap	160	160	160
Medical Threshold	35	35	35
Asset Limits			
No Elderly in Unit	2,000	2,000	2,000
Elderly in Unit	3,000	3,000	3,000

SOURCE: Unpublished data from U.S. Department of Agriculture, Food and Consumer Service.

^aThe gross income screen is 130 percent of the net income screen, which is the federal poverty guideline.

APPENDIX B

**PERCENT CHANGE IN PARTICIPANTS AND ELIGIBLES BETWEEN
JANUARY 1989 AND JANUARY 1994**

	January 1989			January 1992			January 1994			January 1989 - January 1992			January 1992 - January 1994		
	Participating	Eligible	Participation	Participating	Eligible	Participation	Participating	Eligible	Participation	Change in	Change in	Change in	Change in	Change in	Change in
	Households	Households		Households	Households		Households	Households		Households	Households	Participants	Eligibles	Part. Rate	Participants
(000s)	(000s)	Rate	(000s)	(000s)	Rate	(000s)	(000s)	Rate	(percent)	(percent)	(% points)	(percent)	(percent)	(% points)	

TABLE 1 POPULATION COUNTS

Individuals(1,000)	18,344	31,041	59.1%	24,291	32,931	73.8%	26,872	37,866	71.0%	32.4%	6.1%	14.7	10.6%	15.0%	-2.8
Households(1,000)	7,037	12,689	55.5%	9,631	13,983	68.9%	10,840	15,749	68.8%	36.9%	10.2%	13.4	12.5%	12.6%	-0.0
Benefits(1,000)	927,391	1,405,636	66.0%	1,615,320	1,981,717	81.5%	1,824,471	2,247,535	81.2%	74.2%	41.0%	15.5	12.9%	13.4%	-0.3
Revised Individuals	18,344	30,722	59.7%								7.2%	14.1			
Revised Households	7,037	12,574	56.0%								11.2%	12.9			
Revised Benefits	927,391	1,391,547	66.6%								42.4%	14.9			

TABLE 2 DISTRIBUTION OF HOUSEHOLDS, BY HOUSEHOLD SIZE

Household Size (number of persons)

1	2,298	5,144	44.7%	3,215	5,973	53.8%	3,703	6,462	57.3%	39.9%	16.1%	9.2	15.2%	8.2%	3.5
2	1,591	2,660	59.8%	2,275	2,857	79.6%	2,568	3,325	77.2%	43.0%	7.4%	19.8	12.9%	16.4%	-2.4
3	1,336	1,901	70.3%	1,853	2,133	86.9%	1,965	2,298	85.5%	38.7%	12.2%	16.6	6.1%	7.8%	-1.4
4	937	1,361	68.8%	1,207	1,476	81.8%	1,401	1,836	76.3%	28.8%	8.4%	12.9	16.1%	24.4%	-5.4
5	486	834	58.3%	646	842	76.7%	700	997	70.2%	32.9%	1.0%	18.4	8.3%	18.4%	-6.5
6+	388	788	49.2%	435	702	62.0%	503	831	60.5%	12.1%	-10.9%	12.7	15.6%	18.3%	-1.4
Small (1-2)	3,889	7,804	49.8%	5,490	8,830	62.2%	6,270	9,787	64.1%	41.2%	13.1%	12.3	14.2%	10.8%	1.9
Large (3+)	3,147	4,884	64.4%	4,141	5,153	80.4%	4,569	5,962	76.6%	31.6%	5.5%	15.9	10.3%	15.7%	-3.7
TOTAL	7,037	12,689	55.5%	9,631	13,983	68.9%	10,840	15,749	68.8%	36.9%	10.2%	13.4	12.5%	12.6%	-0.0

	January 1989			January 1992			January 1994			January 1989 - January 1992			January 1992 - January 1994		
	Participating	Eligible	Participation	Participating	Eligible	Participation	Participating	Eligible	Participation	Change in	Change in	Change in	Change in	Change in	Change in
	Households	Households		Households	Households		Households	Households		Households	Households	Participants	Eligibles	Part. Rate	Participants
	(000s)	(000s)	Rate	(000s)	(000s)	Rate	(000s)	(000s)	Rate	(percent)	(percent)	(% points)	(percent)	(percent)	(% points)
TABLE 6 DISTRIBUTION OF HOUSEHOLDS															
Monthly Benefit Level:															
<=\$10	478	1,928	24.8%	353	1,828	19.3%	499	2,184	22.9%	-26.2%	-5.2%	-5.5	41.5%	19.5%	3.6
\$11-25	345	821	42.0%	425	738	57.6%	494	778	63.5%	23.2%	-10.1%	15.6	16.2%	5.4%	5.9
\$26-50	580	1,309	44.3%	628	1,172	53.6%	639	1,261	50.7%	8.3%	-10.5%	9.3	1.8%	7.6%	-2.9
\$51-75	711	1,359	52.3%	553	1,063	52.0%	618	1,183	52.2%	-22.2%	-21.8%	-0.3	11.7%	11.3%	0.2
\$76-100	1,251	2,172	57.6%	803	979	82.0%	712	1,136	62.6%	-35.8%	-54.9%	24.4	-11.3%	16.1%	-19.4
\$101-150	1,011	1,273	79.4%	2,139	2,877	74.3%	2,522	3,165	79.7%	111.6%	126.0%	-5.1	17.9%	10.0%	5.3
\$151-200	1,160	1,643	70.6%	1,229	1,234	99.6%	1,479	1,399	105.7%	5.9%	-24.9%	29.0	20.3%	13.4%	6.1
\$201+	1,501	2,186	68.7%	3,500	4,092	85.5%	3,877	4,643	83.5%	133.2%	87.2%	16.9	10.8%	13.5%	-2.0
<=\$10	478	1,928	24.8%	353	1,828	19.3%	499	2,184	22.9%	-26.2%	-5.2%	-5.5	41.5%	19.5%	3.6
\$11-75	1,636	3,489	46.9%	1,606	2,973	54.0%	1,751	3,222	54.3%	-1.8%	-14.8%	7.1	9.0%	8.4%	0.3
\$76-150	2,262	3,445	65.7%	2,942	3,856	76.3%	3,234	4,302	75.2%	30.1%	11.9%	10.6	9.9%	11.6%	-1.1
\$151+	2,661	3,829	69.5%	4,729	5,326	88.8%	5,356	6,042	88.6%	77.7%	39.1%	19.3	13.3%	13.4%	-0.1
Monthly Benefit Level as % of Maximum Benefit:															
1%-25%	1,032	3,232	31.9%	1,092	3,254	33.6%	1,391	3,818	36.4%	5.8%	0.7%	1.6	27.4%	17.3%	2.9
26%-50%	1,315	2,573	51.1%	1,667	2,482	67.2%	1,676	2,829	59.2%	26.8%	-3.5%	16.1	0.5%	14.0%	-7.9
51%-75%	1,835	2,520	72.8%	2,159	2,668	80.9%	2,459	2,974	82.7%	17.7%	5.9%	8.1	13.9%	11.5%	1.7
76%-99%	1,501	1,800	83.4%	2,518	2,316	108.7%	2,665	2,622	101.6%	67.8%	28.7%	25.3	5.8%	13.2%	-7.1
100%	1,353	2,564	52.8%	2,194	3,263	67.2%	2,649	3,505	75.6%	62.2%	27.3%	14.5	20.7%	7.4%	8.3
Low (1-75%)	4,182	8,325	50.2%	4,918	8,404	58.5%	5,526	9,621	57.4%	17.6%	0.9%	8.3	12.4%	14.5%	-1.1
High (76-100%)	2,854	4,364	65.4%	4,712	5,579	84.5%	5,314	6,128	86.7%	65.1%	27.8%	19.1	12.8%	9.8%	2.3

	January 1989			January 1992			January 1994			January 1989 - January 1992			January 1992 - January 1994		
	Participating	Eligible	Participation	Participating	Eligible	Participation	Participating	Eligible	Participation	Change in	Change in	Change in	Change in	Change in	Change in
	Households	Households		Households	Households		Households	Households		Households	Households	Participants	Eligibles	Part. Rate	Participants
(000s)	(000s)	Rate	(000s)	(000s)	Rate	(000s)	(000s)	Rate	(percent)	(percent)	(% points)	(percent)	(percent)	(% points)	

TABLE 7 DISTRIBUTION OF PERSONS

Income as a Percentage of Poverty:

Total <= 100	17,032	23,167	73.5%	22,328	25,154	88.8%	24,575	28,598	85.9%	31.1%	8.6%	15.2	10.1%	13.7%	-2.8
0	1,084	1,230	88.1%	1,573	1,578	99.7%	1,715	1,522	112.6%	45.1%	28.3%	11.6	9.0%	-3.5%	13.0
1-50	6,618	8,219	80.5%	9,129	9,095	100.4%	9,476	9,888	95.8%	37.9%	10.7%	19.9	3.8%	8.7%	-4.5
51-100	9,331	13,718	68.0%	11,626	14,481	80.3%	13,383	17,188	77.9%	24.6%	5.6%	12.3	15.1%	18.7%	-2.4
Total > 100	1,311	7,873	16.7%	1,963	7,777	25.2%	2,298	9,267	24.8%	49.7%	-1.2%	8.6	17.0%	19.2%	-0.4
101-130	1,242	6,804	18.3%	1,895	6,460	29.3%	2,192	7,738	28.3%	52.6%	-5.1%	11.1	15.7%	19.8%	-1.0
130+	70	1,069	6.5%	68	1,317	5.2%	106	1,529	6.9%	-2.9%	23.2%	-1.4	55.9%	16.1%	1.8

TABLE 8 DISTRIBUTION OF HOUSEHOLDS

Income as a Percentage of Poverty:

Total <= 100	6,519	9,030	72.2%	8,870	10,288	86.2%	9,905	11,356	87.2%	36.1%	13.9%	14.0	11.7%	10.4%	1.0
0	532	647	82.2%	924	880	105.0%	1,105	773	142.9%	73.7%	36.0%	22.8	19.5%	-12.2%	37.9
1-50	2,224	2,573	86.4%	3,091	3,029	102.0%	3,300	3,310	99.7%	39.0%	17.7%	15.6	6.8%	9.3%	-2.4
51-100	3,763	5,811	64.8%	4,856	6,379	76.1%	5,500	7,273	75.6%	29.0%	9.8%	11.4	13.3%	14.0%	-0.5
Total > 100	518	3,659	14.2%	761	3,695	20.6%	935	4,393	21.3%	46.9%	1.0%	6.4	22.8%	18.9%	0.7
101-130	474	2,973	15.9%	716	2,885	24.8%	873	3,370	25.9%	51.1%	-3.0%	8.9	21.9%	16.8%	1.1
130+	44	686	6.4%	45	810	5.6%	62	1,023	6.0%	2.3%	18.1%	-0.9	37.2%	26.3%	0.5

TABLE 9 BENEFITS TO HOUSEHOLDS (in millions of dollars)

Income as a Percentage of Poverty:

Total <= 100	903	1,251	72.2%	1,564	1,770	88.4%	1,765	1,998	88.4%	73.2%	41.4%	16.2	12.9%	12.9%	-0.0
0	88	100	88.1%	160	159	100.3%	182	153	119.0%	81.9%	59.6%	12.3	13.9%	-4.0%	18.7
1-50	439	559	78.6%	765	792	96.6%	830	872	95.2%	74.2%	41.7%	18.0	8.6%	10.1%	-1.4
51-100	376	593	63.5%	640	819	78.1%	754	974	77.4%	69.9%	38.1%	14.6	17.8%	18.9%	-0.7
Total > 100	24	154	15.7%	52	212	24.3%	59	250	23.7%	113.2%	37.6%	8.6	14.7%	17.6%	-0.6
101-130	23	135	17.3%	51	179	28.4%	57	212	26.8%	118.5%	33.0%	11.1	11.9%	18.4%	-1.6
130+	1	20	4.6%	1	33	2.1%	2	37	6.0%	-22.2%	68.7%	-2.5	221.8%	13.4%	3.9

	January 1989			January 1992			January 1994			January 1989 - January 1992			January 1992 - January 1994		
	Participating	Eligible	Participation Rate	Participating	Eligible	Participation Rate	Participating	Eligible	Participation Rate	Change in	Change in	Change in	Change in	Change in	Change in
	Households (000s)	Households (000s)		Households (000s)	Households (000s)		Households (000s)	Households (000s)		Households (000s)	Households (000s)	Participants (percent)	Eligibles (percent)	Part. Rate (% points)	Participants (percent)
TABLE 10 HOUSEHOLDS															
Source of Income:															
Earned Income	1,383	4,277	32.3%	1,910	3,959	48.2%	2,301	5,026	45.8%	38.1%	-7.4%	15.9	20.5%	26.9%	-2.5
SSI	1,401	2,093	66.9%	1,755	2,393	73.3%	2,251	2,767	81.4%	25.3%	14.3%	6.4	25.3%	14.3%	8.0
Elderly in the Unit	789	1,351	58.4%	876	1,372	63.8%	926	1,314	70.5%	11.0%	1.6%	5.4	5.7%	-4.2%	6.6
No Elderly in the Unit	612	741	82.6%	879	1,020	86.2%	1,325	1,453	91.2%	43.6%	37.7%	3.6	50.7%	42.4%	5.0
Public Assistance	3,640	3,009	121.0%	4,574	3,783	120.9%	4,979	4,277	116.4%	25.7%	25.7%	-0.1	8.8%	13.1%	-4.5
AFDC	2,899	2,381	121.8%	3,754	3,129	120.0%	4,234	3,642	116.3%	29.5%	31.4%	-1.8	12.8%	16.4%	-3.7
Other Welfare	791	748	105.7%	885	744	119.0%	770	702	109.7%	11.9%	-0.5%	13.2	-13.0%	-5.7%	-9.3
Unemployment															
Compensation	157	343	45.8%	267	648	41.2%	256	496	51.7%	70.1%	88.9%	-4.6	-4.0%	-23.5%	10.5

	January 1989			January 1992			January 1994			January 1989 - January 1992			January 1992 - January 1994		
	Participating	Eligible	Participation	Participating	Eligible	Participation	Participating	Eligible	Participation	Change in	Change in	Change in	Change in	Change in	Change in
	Households	Households		Households	Households		Households	Households		Households	Households	Participants	Eligibles	Part. Rate	Participants
	(000s)	(000s)	Rate	(000s)	(000s)	Rate	(000s)	(000s)	Rate	(percent)	(percent)	(% points)	(percent)	(percent)	(% points)
Table 11a HOUSEHOLDS BELOW POVERTY															
Benefit Level as a % of Maximum Benefit:															
1%-25%	692	890	77.7%	672	1,010	66.5%	850	1,175	72.3%	-2.8%	13.5%	-11.2	26.4%	16.3%	5.8
26%-50%	1,174	1,632	71.9%	1,405	1,507	93.3%	1,370	1,698	80.7%	19.8%	-7.6%	21.3	-2.5%	12.6%	-12.6
51%-75%	1,808	2,308	78.3%	2,097	2,450	85.6%	2,397	2,639	90.9%	16.0%	6.2%	7.2	14.3%	7.7%	5.3
76%-99%	1,496	1,747	85.6%	2,508	2,253	111.3%	2,653	2,536	104.6%	67.7%	28.9%	25.7	5.8%	12.6%	-6.7
100%	1,350	2,453	55.0%	2,187	3,067	71.3%	2,635	3,315	79.5%	62.1%	25.0%	16.3	20.5%	8.1%	8.2
Household Composition															
Elderly Present	1,131	2,574	43.9%	1,312	2,745	47.8%	1,446	2,776	52.1%	16.0%	6.6%	3.9	10.2%	1.1%	4.3
Living Alone	848	1,723	49.2%	981	1,924	51.0%	1,059	1,856	57.1%	15.8%	11.7%	1.8	7.9%	-3.5%	6.0
Living with others	283	851	33.3%	331	821	40.2%	387	919	42.1%	16.8%	-3.5%	7.0	17.0%	12.0%	1.8
Nonelderly Households															
With Earnings	1,043	2,377	43.9%	1,407	2,129	66.1%	1,747	2,729	64.0%	35.0%	-10.4%	22.2	24.1%	28.2%	-2.1
With Children	845	1,825	46.3%	1,154	1,613	71.6%	1,461	2,049	71.3%	36.6%	-11.6%	25.3	26.6%	27.1%	-0.3
Without Children	198	552	35.8%	253	517	49.0%	286	679	42.1%	27.9%	-6.5%	13.2	13.0%	31.5%	-6.9
All HHs w/kids w/earnings															
Single parent	NA	NA	NA	1,178	1,648	71.5%	1,477	2,080	71.0%	NA	NA	NA	25.4%	26.2%	-0.5
Multiple parent	NA	NA	NA	568	780	72.7%	762	1,022	74.6%	NA	NA	NA	34.3%	31.0%	1.8
Other	NA	NA	NA	611	868	70.4%	714	1,058	67.6%	NA	NA	NA	17.0%	21.9%	-2.8
Other	4,345	4,079	106.5%	6,151	5,414	113.6%	6,712	5,852	114.7%	41.6%	32.7%	7.1	9.1%	8.1%	1.1
Total	6,519	9,030	72.2%	8,870	10,288	86.2%	9,905	11,356	87.2%	36.1%	13.9%	14.0	11.7%	10.4%	1.0
Inside Metropolitan Area															
Outside Metropolitan Area	4,774	6,336	75.4%	NA	7,254	NA	NA	8,240	NA	NA	14.5%	NA	NA	13.6%	NA
Metro status missing	1,744	2,694	64.7%	NA	3,034	NA	NA	3,307	NA	NA	12.6%	NA	NA	9.0%	NA
Population Counts															
Persons (thousands)	4	427	0.9%												
Persons (thousands)	17,032	23,167	73.5%	22,328	25,154	88.8%	24,575	28,598	85.9%	31.1%	8.6%	15.2	10.1%	13.7%	-2.8
Households (thousands)	6,519	9,030	72.2%	8,870	10,288	86.2%	9,905	11,356	87.2%	36.1%	13.9%	14.0	11.7%	10.4%	1.0
Benefits (millions)	903	1,251	72.2%	1,564	1,770	88.4%	1,765	1,998	88.4%	73.1%	41.4%	16.2	12.9%	12.9%	-0.0

	January 1989			January 1992			January 1994			January 1989 - January 1992			January 1992 - January 1994		
	Participating	Eligible	Participation	Participating	Eligible	Participation	Participating	Eligible	Participation	Change in	Change in	Change in	Change in	Change in	Change in
	Households	Households		Households	Households		Households	Households		Households	Households	Participants	Eligibles	Part. Rate	Participants
	(000s)	(000s)	Rate	(000s)	(000s)	Rate	(000s)	(000s)	Rate	(percent)	(percent)	(% points)	(percent)	(percent)	(% points)
Table 11b HOUSEHOLDS ABOVE POVERTY															
Benefit Level as a % of Maximum Benefit															
1%-25%	341	2,342	14.5%	420	2,244	18.7%	541	2,643	20.5%	23.4%	-4.2%	4.2	28.8%	17.8%	1.7
26%-50%	142	942	15.0%	262	975	26.9%	306	1,138	26.9%	85.1%	3.6%	11.8	16.9%	16.7%	0.1
51%-75%	26	212	12.4%	62	217	28.7%	62	336	18.4%	136.9%	2.6%	16.3	-1.3%	54.3%	-10.3
76%-99%	6	52	10.6%	10	63	15.7%	12	86	13.8%	77.1%	20.2%	5.0	20.6%	36.6%	-1.8
100%	4	111	3.4%	7	195	3.4%	14	191	7.2%	76.0%	75.9%	0.0	107.1%	-2.4%	3.8
Composition															
Elderly Present	161	1,877	8.6%	221	1,834	12.0%	276	2,029	13.6%	37.4%	-2.3%	3.5	25.0%	10.6%	1.6
Living Alone	97	1,281	7.6%	151	1,190	12.7%	201	1,346	15.0%	55.5%	-7.2%	5.1	33.5%	13.1%	2.3
Living with others	64	596	10.7%	70	644	10.9%	75	683	10.9%	9.8%	8.1%	0.2	6.6%	6.0%	0.1
Nonelderly Households															
With Earnings	271	1,460	18.6%	423	1,435	29.5%	489	1,869	26.2%	56.0%	-1.7%	10.9	15.6%	30.3%	-3.3
With Children	233	1,025	22.7%	360	1,021	35.2%	425	1,329	32.0%	54.4%	-0.4%	12.5	18.0%	30.1%	-3.3
Without Children	38	435	8.7%	63	414	15.2%	64	541	11.9%	66.2%	-4.8%	6.5	2.1%	30.6%	-3.3
All HHs w/kids w/earnings	NA	NA	NA	363	1,054	34.5%	430	1,375	31.3%	NA	NA	NA	18.3%	30.4%	-3.2
Single parent	NA	NA	NA	190	490	38.8%	243	683	35.7%	NA	NA	NA	28.1%	39.4%	-3.1
Multiple parent	NA	NA	NA	173	564	30.7%	187	692	27.0%	NA	NA	NA	7.6%	22.6%	-3.8
Other	86	322	26.8%	118	425	27.6%	170	495	34.3%	36.4%	32.2%	0.9	44.6%	16.3%	6.7
Total	518	3,659	14.2%	761	3,695	20.6%	935	4,393	21.3%	47.0%	1.0%	6.4	22.8%	18.9%	0.7
Inside Metropolitan Area															
Outside Metropolitan Area	171	946	18.0%	NA	1,115	NA	NA	1,241	NA	NA	17.8%	NA	NA	11.3%	NA
Metro status missing	2	79	2.4%												
Population Counts															
Persons (thousands)	1,311	7,873	16.7%	1,963	7,777	25.2%	2,298	9,267	24.8%	49.7%	-1.2%	8.6	17.1%	19.2%	-0.4
Households (thousands)	518	3,659	14.2%	761	3,695	20.6%	935	4,393	21.3%	47.0%	1.0%	6.4	22.8%	18.9%	0.7
Benefits (millions)	24	154	15.7%	52	212	24.3%	59	250	23.7%	112.7%	37.6%	8.6	14.8%	17.6%	-0.6

	January 1989			January 1992			January 1994			January 1989 - January 1992			January 1992 - January 1994		
	Participating	Eligible	Participation	Participating	Eligible	Participation	Participating	Eligible	Participation	Change in	Change in	Change in	Change in	Change in	Change in
	Households	Households		Households	Households		Households	Households		Households	Households	Participants	Eligibles	Part. Rate	Participants
	(000s)	(000s)	Rate	(000s)	(000s)	Rate	(000s)	(000s)	Rate	(percent)	(percent)	(% points)	(percent)	(percent)	(% points)
Table 11c HOUSEHOLDS TOTAL															
Benefit Level as a % of Maximum Benefit															
1%-25%	1,032	3,232	31.9%	1,092	3,254	33.6%	1,391	3,818	36.4%	5.8%	0.7%	1.6	27.3%	17.3%	2.9
26%-50%	1,315	2,573	51.1%	1,667	2,482	67.2%	1,676	2,829	59.2%	26.8%	-3.5%	16.1	0.5%	14.0%	-7.9
51%-75%	1,835	2,520	72.8%	2,159	2,668	80.9%	2,459	2,974	82.7%	17.7%	5.9%	8.1	13.9%	11.5%	1.7
76%-99%	1,501	1,800	83.4%	2,518	2,316	108.7%	2,665	2,622	101.6%	67.8%	28.7%	25.3	5.8%	13.2%	-7.1
100%	1,353	2,564	52.8%	2,194	3,263	67.2%	2,649	3,505	75.6%	62.1%	27.2%	14.5	20.7%	7.4%	8.3
Composition															
Elderly Present	1,291	4,451	29.0%	1,533	4,579	33.5%	1,722	4,805	35.8%	18.7%	2.9%	4.5	12.3%	4.9%	2.4
Living Alone	945	3,004	31.4%	1,132	3,113	36.4%	1,260	3,202	39.4%	19.8%	3.6%	4.9	11.3%	2.8%	3.0
Living with others	347	1,447	24.0%	401	1,466	27.3%	461	1,603	28.8%	15.5%	1.3%	3.4	15.2%	9.4%	1.5
Nonelderly Households															
With Earnings	1,314	3,837	34.2%	1,830	3,564	51.3%	2,236	4,598	48.6%	39.3%	-7.1%	17.1	22.2%	29.0%	-2.7
With Children	1,078	2,850	37.8%	1,514	2,634	57.5%	1,886	3,378	55.8%	40.4%	-7.6%	19.7	24.5%	28.3%	-1.7
Without Children	236	987	23.9%	316	931	34.0%	350	1,220	28.7%	34.0%	-5.7%	10.1	10.8%	31.1%	-5.2
All HHs w/kids w/earnings	NA	NA	NA	1,542	2,702	57.1%	1,907	3,455	55.2%	NA	NA	NA	23.7%	27.9%	-1.9
Single parent	NA	NA	NA	758	1,270	59.6%	1,006	1,705	59.0%	NA	NA	NA	32.8%	34.2%	-0.7
Multiple parent	NA	NA	NA	784	1,432	54.8%	901	1,750	51.5%	NA	NA	NA	14.9%	22.2%	-3.3
Other	4,431	4,401	100.7%	6,269	5,840	107.3%	6,882	6,346	108.4%	41.5%	32.7%	6.6	9.8%	8.7%	1.1
Total	7,037	12,689	55.5%	9,631	13,983	68.9%	10,840	15,749	68.8%	36.9%	10.2%	13.4	12.5%	12.6%	-0.1
Inside Metropolitan Area															
Outside Metropolitan Area	1,915	3,641	52.6%	NA	4,149	NA	NA	4,548	0.0%	NA	14.0%	NA	NA	9.6%	NA
Metro status missing	6	506	1.2%												
Population Counts															
Persons (thousands)	18,344	31,041	59.1%	24,291	32,931	73.8%	26,872	37,866	71.0%	32.4%	6.1%	14.7	10.6%	15.0%	-2.8
Households (thousands)	7,037	12,689	55.5%	9,631	13,983	68.9%	10,840	15,749	68.8%	36.9%	10.2%	13.4	12.5%	12.6%	-0.1
Benefits (millions)	927	1,406	66.0%	1,615	1,982	81.5%	1,824	2,248	81.2%	74.2%	41.0%	15.5	12.9%	13.4%	-0.3

	January 1989			January 1992			January 1994			January 1989 - January 1992			January 1992 - January 1994		
	Participating	Eligible	Participation	Participating	Eligible	Participation	Participating	Eligible	Participation	Change in	Change in	Change in	Change in	Change in	Change in
	Households	Households		Households	Households		Households	Households		Households	Households	Participants	Eligibles	Part. Rate	Participants
	(000s)	(000s)	Rate	(000s)	(000s)	Rate	(000s)	(000s)	Rate	(percent)	(percent)	(% points)	(percent)	(percent)	(% points)
Elderly	100	509	19.7%	130	544	23.8%	164	585	28.1%	29.0%	6.8%	4.1	27.0%	7.6%	4.3
living alone	75	340	22.2%	104	379	27.4%	122	425	28.8%	37.7%	11.7%	5.2	18.0%	12.1%	1.5
living with others	25	170	14.7%	26	165	15.6%	42	160	26.2%	3.0%	-3.0%	0.9	62.9%	-2.8%	10.6
Nonelderly households w/earnings	155	389	39.8%	201	323	62.1%	244	418	58.3%	29.6%	-16.9%	22.3	21.5%	29.5%	-3.8
with children	70	173	40.8%	74	179	41.3%	118	161	73.0%	4.9%	3.5%	0.5	59.4%	-9.9%	31.8
without children	84	216	39.0%	127	144	87.8%	126	257	49.0%	50.2%	-33.2%	48.8	-0.5%	78.2%	-38.8
Nonelderly HHs w/out earnings	1,077	1,515	71.1%	1,798	2,079	86.4%	2,152	2,245	95.8%	66.9%	37.3%	15.4	19.7%	8.0%	9.4
with children	484	852	56.7%	795	1,033	76.9%	879	1,224	71.8%	64.3%	21.2%	20.2	10.6%	18.5%	-5.1
without children	593	662	89.5%	1,003	1,046	95.9%	1,273	1,021	124.6%	69.1%	57.9%	6.3	26.9%	-2.4%	28.8
All HHs w/kids w/earnings	NA	NA	NA	75	181	41.3%	119	165	72.1%	NA	NA	NA	59.3%	-8.7%	30.8
Single parent	NA	NA	NA	28	108	25.6%	82	101	81.0%	NA	NA	NA	194.4%	-6.9%	55.4
Multiple parent	NA	NA	NA	47	73	64.7%	37	64	58.0%	NA	NA	NA	-20.7%	-11.5%	-6.7
Income as percent of poverty															
0	532	647	82.2%	924	880	104.9%	1,105	773	142.9%	73.7%	36.1%	22.7	19.6%	-12.2%	38.0
1-50	694	1,295	53.6%	1,043	1,561	66.8%	1,206	1,818	66.4%	50.2%	20.5%	13.2	15.6%	16.5%	-0.5
51-100	106	471	22.5%	161	505	31.8%	249	658	37.9%	51.9%	7.3%	9.4	54.8%	30.2%	6.0
Inside Metropolitan Area	960	1,707	56.2%	NA	2,175	NA	NA	2,417	NA	NA	27.4%	NA	NA	11.1%	NA
Outside Metropolitan Area	372	706	52.7%	NA	771	NA	NA	899	NA	NA	9.2%	NA	NA	16.5%	NA
Metro status missing	2	136	1.5%												
Total Households	1,332	2,413	55.2%	2,128	2,946	72.2%	2,560	3,249	78.8%	59.7%	22.1%	17.0	20.3%	10.3%	6.6

	January 1989			January 1992			January 1994			January 1989 - January 1992			January 1992 - January 1994		
	Participating	Eligible	Participation	Participating	Eligible	Participation	Participating	Eligible	Participation	Change in	Change in	Change in	Change in	Change in	Change in
	Households	Households		Households	Households		Households	Households		Households	Households	Participants	Eligibles	Part. Rate	Participants
	(000s)	(000s)	Rate	(000s)	(000s)	Rate	(000s)	(000s)	Rate	(percent)	(percent)	(% points)	(percent)	(percent)	(% points)
Table 13 DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS OF HOUSEHOLDS															
Household Size															
1	2,298	5,144	44.7%	3,215	5,973	53.8%	3,703	6,462	57.3%	39.9%	16.1%	9.2	15.2%	8.2%	3.5
2	1,591	2,660	59.8%	2,275	2,857	79.6%	2,568	3,325	77.2%	43.0%	7.4%	19.8	12.8%	16.4%	-2.4
3	1,336	1,901	70.3%	1,853	2,133	86.9%	1,965	2,298	85.5%	38.7%	12.2%	16.6	6.0%	7.8%	-1.4
4	937	1,361	68.8%	1,207	1,476	81.8%	1,401	1,836	76.3%	28.8%	8.4%	13.0	16.1%	24.4%	-5.5
5	486	834	58.2%	646	842	76.7%	700	997	70.2%	32.9%	0.9%	18.5	8.4%	18.4%	-6.5
6+	388	788	49.3%	435	702	62.0%	503	831	60.5%	12.0%	-10.9%	12.7	15.7%	18.4%	-1.4
Households contain															
Elderly	1,291	4,451	29.0%	1,533	4,579	33.5%	1,722	4,805	35.8%	18.7%	2.9%	4.5	12.3%	4.9%	2.4
Elderly Living alone	945	3,004	31.4%	1,132	3,113	36.4%	1,260	3,202	39.4%	19.8%	3.6%	4.9	11.3%	2.8%	3.0
Disabled	640	1,115	57.4%	910	1,351	67.4%	1,378	1,944	70.9%	42.3%	21.1%	10.0	51.4%	43.9%	3.5
Disabled living alone	301	336	89.6%	448	380	117.8%	619	657	94.1%	48.7%	13.1%	28.2	38.2%	73.0%	-23.7
Children under age 18	4,216	6,010	70.1%	5,872	6,580	89.2%	6,527	7,631	85.5%	39.3%	9.5%	19.1	11.2%	16.0%	-3.7
Children under age 5	2,262	3,020	74.9%	3,430	3,533	97.1%	3,820	4,116	92.8%	51.6%	17.0%	22.2	11.4%	16.5%	-4.3
Children ages 5 to 17	3,165	4,644	68.2%	4,070	4,988	81.6%	4,544	5,824	78.0%	28.6%	7.4%	13.4	11.6%	16.8%	-3.6
Single-female with children	2,718	3,507	77.5%	3,833	3,789	101.2%	4,215	4,402	95.8%	41.0%	8.0%	23.7	10.0%	16.2%	-5.4
Single male with children	109	192	56.7%	164	208	79.0%	298	261	114.1%	50.9%	8.2%	22.4	81.5%	25.7%	35.1
Two or more adults w/children	1,389	2,296	60.5%	1,874	2,417	77.5%	2,014	2,776	72.5%	34.9%	5.3%	17.0	7.4%	14.8%	-5.0
Single able-bodied adult (nonelderly, nondisabled)	1,024	1,222	83.8%	1,531	1,358	112.7%	1,710	1,439	118.8%	49.4%	11.1%	28.9	11.7%	6.0%	6.1
White nonhispanic head	3,236	7,146	45.3%	4,570	7,803	58.6%	5,127	8,533	60.1%	41.2%	9.2%	13.3	12.2%	9.4%	1.5
Black nonhispanic head	2,615	3,452	75.8%	3,334	3,612	92.3%	3,753	4,016	93.5%	27.5%	4.6%	16.6	12.6%	11.2%	1.1
Hispanic Head	878	1,763	49.8%	1,300	2,117	61.4%	1,631	2,612	62.5%	48.2%	20.1%	11.6	25.5%	23.4%	1.1
Household income includes:															
Earnings	1,383	4,277	32.3%	1,910	3,959	48.2%	2,301	5,026	45.8%	38.2%	-7.4%	15.9	20.4%	26.9%	-2.5
SSI	1,401	2,093	67.0%	1,755	2,393	73.4%	2,251	2,767	81.4%	25.3%	14.3%	6.4	28.2%	15.6%	8.0
Unemployment compensation	157	343	45.6%	267	648	41.2%	256	496	51.7%	70.6%	88.8%	-4.4	-4.0%	-23.5%	10.5
Population Counts															
Persons (thousands)	18,344	31,041	59.1%	24,291	32,931	73.8%	26,872	37,866	71.0%	32.4%	6.1%	14.7	10.6%	15.0%	-2.8
Households (thousands)	7,037	12,689	55.5%	9,631	13,983	68.9%	10,840	15,749	68.8%	36.9%	10.2%	13.4	12.5%	12.6%	-0.1
Benefits (millions)	927	1,406	66.0%	1,615	1,982	81.5%	1,824	2,248	81.2%	74.2%	41.0%	15.5	12.9%	13.4%	-0.3
Pov Ratio															
0	532	647	82.2%	924	880	104.9%	1,105	773	142.9%	73.7%	36.1%	22.7	19.6%	-12.2%	38.0
1-50	2,224	2,573	86.5%	3,091	3,029	102.0%	3,300	3,310	99.7%	39.0%	17.8%	15.6	6.8%	9.3%	-2.3
51-100	3,763	5,811	64.8%	4,856	6,379	76.1%	5,500	7,273	75.6%	29.0%	9.8%	11.4	13.3%	14.0%	-0.5
Total > 100	518	3,659	14.2%	761	3,695	20.6%	935	4,393	21.3%	47.0%	1.0%	6.4	22.8%	18.9%	0.7

APPENDIX C

**UNWEIGHTED SAMPLE SIZES FOR THE IQCS AND SIPP
DATA USED TO ESTIMATE PARTICIPATION RATES**

APPENDIX C

UNWEIGHTED SAMPLE SIZES
FOR THE IQCS CASE RECORDS

Month/Year	IQCS Case Records
July/August 1985	6,894
January/February 1988	11,012
January/February 1989	10,514
January/February 1992	9,826
January/February 1994	9,144

UNWEIGHTED SAMPLE SIZES
FOR SIPP

Month/Year	Eligible Households	All Households
August 1985	3,559	27,600
January 1988	2,431	18,870
January 1989	2,843	22,040
January 1992	5,035	33,849
January 1994	5,732	36,593

APPENDIX D

SAMPLING ERROR OF PARTICIPATION RATE ESTIMATES

Sampling Error

The participation rates contained in this report represent the ratio of food stamp participants to food stamp eligibles. Participant counts are based on Food Stamp Program Operations data and a two-month sample from the Integrated Quality Control System (IQCS). Eligible counts are based on SIPP data from January 1994. Since both counts are derived from samples, both are subject to statistical sampling error, as are the resulting participation rate estimates.

One indicator of the magnitude of the sampling error associated with a given estimate is its standard error. Standard errors measure the variation in estimated values that would be observed if multiple replications of the sample were drawn. The magnitude of the standard errors depends on: (1) the degree of variation in the variable within the population from which the sample is drawn; (2) the design of the sample, including such issues as stratification and sampling probabilities; and (3) the size of the sample on which the estimate is based. This appendix presents estimates of the standard errors associated with selected participation rates.

Standard Errors of Participation Rates

Generally, the variance of a nonlinear variable, such as a participation rate, can not be estimated directly. Rather, one must estimate the variance of a linear approximation of the nonlinear variable. To estimate the variance of participation rates contained in this report, we first use a Taylor series expansion to produce a linear approximation of the participation rate.¹ Then, the variance of the participation rate-- $var(r)$ --can be expressed as a function of the number of participants (p), the number of eligibles (e), and their respective variances (equation 1). The standard error of the participation rate is simply the square root of the variance.

$$(1) \quad var(r) = var(p/e) = (1/e)^2 var(p) + p^2 var(1/e)$$

¹For a discussion of this method, see Wolter (1985).

Because the IQCS sample design is relatively simple, we directly calculated the variance of the number of participants. The SIPP, however, has a complex sample design. Therefore, we estimated the variance of the number of eligibles using a "jackknife" estimator (Rao, Wu, and Yue, 1992). Using the jackknife method involves calculating alternative estimates of the number of eligible households based on subsamples of the SIPP, then obtaining a variance by measuring the variability in the alternative estimates. Estimates of the variance of participation rates for 1994 and 1992, and confidence intervals for those rates, are presented in Tables D.1 and D.2.²

Standard Errors of Changes in Participation Rates

The variance of the change in participation rate between two years, in this case 1992 and 1994, is equal to the sum of the individual variances.

$$(2) \quad \text{var}(r_{94}-r_{92}) = \text{var}(r_{94}) + \text{var}(r_{92})$$

Table D.3 presents estimated variances and confidence intervals for the change in participation rates between 1992 and 1994 among selected subgroups.

²A confidence interval is a range of values that will contain the true value of an estimated variable with a known probability. For instance, an 80 percent confidence interval extends approximately 1.28 standard errors above and below the estimated value for a characteristic, and 80 percent of all confidence intervals will contain the true value.

TABLE D.1

SAMPLING ERROR ASSOCIATED WITH JANUARY 1994 SIPP-BASED FSP PARTICIPATION RATES

Variable	Eligibles		Participants			Participation Rate	Confidence Interval 80 Percent
	Number (000s)	Variance of (1/eligibles)	Number (000s)	Adjusted (000s)	Variance of Participants		
Units	15,749	6.57E-19	11,217	10,840	0	68.8%	+/- 1.2%
Participants	37,866	1.71E-19	28,131	26,872	0	71.0%	+/- 1.5%
Benefits	2,247,535	5.87E-23	1,873,681	1,824,471	0	81.2%	+/- 1.8%
Children	17,013	1.68E-18	14,297	13,652	5.73E+10	80.2%	+/- 3.0%
Non-Elderly Adults	15,438	1.16E-18	11,797	11,264	1.45E+10	73.0%	+/- 1.9%
Elderly Persons	5,414	2.06E-17	1,998	1,908	6.18E+09	35.2%	+/- 2.2%
Disabled Persons	2,050	3.88E-16	1,523	1,454	2.86E+09	70.9%	+/- 5.1%
Households With							
Single parent & kids	4,663	2.94E-17	4,671	4,513	7.58E+09	96.8%	+/- 4.0%
Minimum benefit	2,155	2.77E-16	512	499	1.16E+09	23.2%	+/- 2.3%
Maximum benefit	3,432	7.40E-17	2,663	2,649	5.47E+09	77.2%	+/- 4.0%
Earnings	4,975	2.35E-17	2,381	2,301	4.67E+09	46.2%	+/- 2.3%
SSI	2,767	1.40E-16	2,329	2,251	3.57E+09	84.2%	+/- 4.5%
PA income	6,587	1.03E-17	5,152	4,979	6.75E+09	78.2%	+/- 2.7%
Unemp. Insurance	496	2.47E-14	265	256	8.29E+08	53.5%	+/- 9.2%

SOURCE: January 1994 MATH SIPP database and Winter 1994 IQCS database.

TABLE D.2

SAMPLING ERROR ASSOCIATED WITH JANUARY 1992 SIPP-BASED FSP PARTICIPATION RATES

Variable	Eligibles		Participants			Participation Rate	Confidence Interval (80 Percent)
	Number (000s)	Variance of (1/eligibles)	Number 000s	Adjusted (000s)	Variance of Participants		
Units	13,983	1.15E-18	9,977	9,631	0	68.9%	+/- 1.4%
Participants	32,931	2.89E-19	25,521	24,291	0	73.8%	+/- 1.8%
Benefits	1,981,717	9.58E-23	1,698,726	1,615,320	0	81.5%	+/- 2.1%
Children	14,455	1.37E-18	13,126	12,357	4.31E+10	85.5%	+/- 2.7%
Non-Elderly Adults	13,340	2.10E-18	10,652	10,214	1.05E+10	76.6%	+/- 2.2%
Elderly Persons	5,137	3.04E-17	1,741	1,707	3.55E+09	33.2%	+/- 1.9%
Disabled Persons	1,419	1.54E-15	979	951	1.71E+09	67.0%	+/- 6.2%
Households With							
Single parent & kids	3,998	5.55E-17	4,256	3,997	5.60E+09	100.0%	+/- 4.7%
Minimum benefit	1,823	5.98E-16	351	353	6.58E+08	19.4%	+/- 2.1%
Maximum benefit	3,139	1.17E-16	2,155	2,194	3.52E+09	69.9%	+/- 3.8%
Earnings	3,896	5.70E-17	1,976	1,910	3.20E+09	49.0%	+/- 2.7%
SSI	2,393	2.62E-16	1,786	1,755	2.74E+09	73.4%	+/- 4.7%
PA income	5,805	1.76E-17	4,867	4,574	4.80E+09	78.8%	+/- 3.0%
Unemp. Insurance	648	1.27E-14	273	267	4.57E+08	41.2%	+/- 5.8%

SOURCE: January 1992 MATH SIPP database and Winter 1992 IQCS database.

TABLE D.3

STATISTICAL SIGNIFICANCE OF CHANGES IN FSP PARTICIPATION RATES BETWEEN 1992 AND 1994

	Participation Rate		Rate Change (1992-1994)			Variance of Rate Change	Std. Error of Rate Change
	1992	1994	(% points)	Confidence Interval (80 Percent)			
Units	68.9%	68.8%	-0.1%	+/- 1.8%		1.97E-04	1.4%
Participants	73.8%	71.0%	-2.8%	+/- 2.3%		3.23E-04	1.8%
Benefits	81.5%	81.2%	-0.3%	+/- 2.8%		4.82E-04	2.2%
Children	85.5%	80.2%	-5.2%	+/- 4.0%		9.85E-04	3.1%
Non-Elderly Adults	76.6%	73.0%	-3.6%	+/- 2.9%		5.20E-04	2.3%
Elderly Persons	33.2%	35.2%	2.0%	+/- 2.9%		5.20E-04	2.3%
Disabled Persons	67.0%	70.9%	3.9%	+/- 8.0%		3.91E-03	6.3%
Households With							
Single parent & kids	100.0%	96.8%	-3.2%	+/- 6.2%		2.35E-03	4.8%
Minimum benefit	19.4%	23.2%	3.8%	+/- 3.1%		5.95E-04	2.4%
Maximum benefit	69.9%	77.2%	7.3%	+/- 5.6%		1.89E-03	4.3%
Earnings	49.0%	46.2%	-2.8%	+/- 3.5%		7.56E-04	2.7%
SSI	73.4%	84.2%	10.8%	+/- 6.5%		2.54E-03	5.0%
PA income	78.8%	78.2%	-0.6%	+/- 4.0%		9.90E-04	3.1%
Unemp. Insurance	41.2%	53.5%	12.3%	+/- 10.8%		7.14E-03	8.5%

SOURCE: January 1992 and January 1994 MATH SIPP database; Winter 1992 and Winter 1994 IQCS database.